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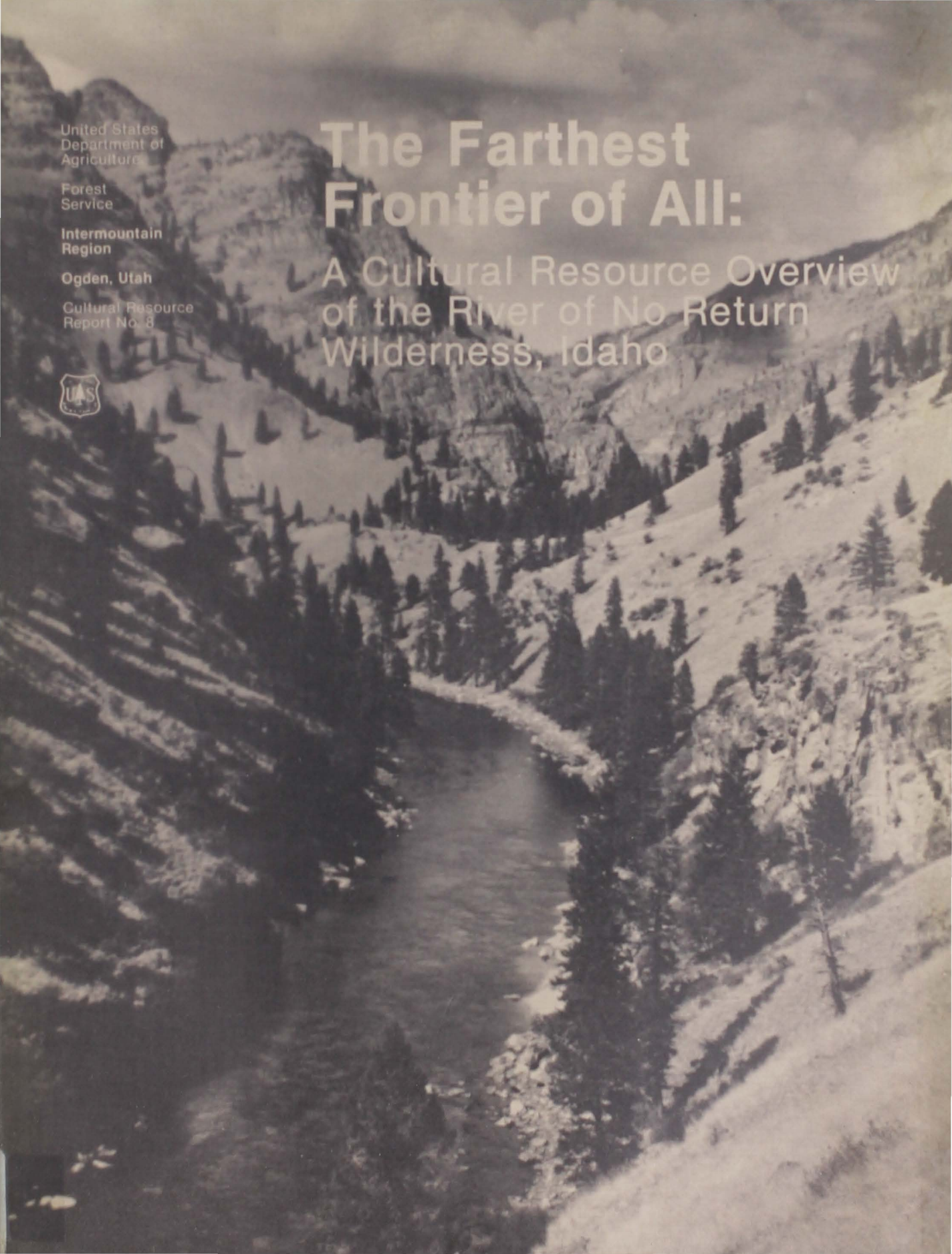
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Cultural Resource
Report No. 8



The Farthest Frontier of All:

A Cultural Resource Overview
of the River of No Return
Wilderness, Idaho



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THE FARTHEST FRONTIER OF ALL:
A Cultural Resource Overview
of the
River of No Return Wilderness, Idaho

by

Leslie E. Wildesen

CULTURAL RESOURCE REPORT NO. 8

USDA Forest Service
Intermountain Region
Ogden, Utah 1982

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EDITORS NOTES

This report was prepared by Wildesen Associates of Portland, Oregon for the Salmon National Forest, to help develop a management plan for the newly created River of No Return Wilderness. It was originally entitled The Farthest Frontier of All: The Salmon Wild and Recreation River, and the Wild and Scenic Middle Fork of the Salmon River.

This is the third in a continuing series of Forest Service publications addressing the culture history of central Idaho. Other recently published studies include an historic overview by Mitzi Rossillon (Report No. 6) and a rafting archeological survey of campgrounds along the Middle Fork by Ruthann Knudson and others (Report No. 7).

These efforts and others clearly demonstrate a long term interest and commitment to cultural resource management and research in central Idaho. The quantity and quality of cultural data in this pristine and remote setting provide a unique opportunity for future research and public interpretation. We hope that this publication will stimulate further interest and investigation in The Farthest Frontier of All.

Cover photograph: Middle Fork Salmon River near Big Creek.

EXECUTIVE SUMMARY

DESCRIPTION OF THE STUDY AREA

The study area described in this report consists of the River of No Return Wilderness (including the Middle Fork Salmon Wild and Scenic River), and the Recreational and Wild segments of the main Salmon River, Idaho. These lands are in Custer, Idaho, Lemhi, and Valley counties, and are administered by the Bitterroot, Boise, Challis, Nezperce, Payette, and Salmon National Forests.

The River of No Return Wilderness was created by Congress in 1980 (P.L. 96-312, the Central Idaho Wilderness Act). It contains over 2,239,000 acres in the Salmon River drainage of central Idaho, and nearly the entire length of the Middle Fork Wild and Scenic River.

The Middle Fork Wild and Scenic River was designated by the Wild and Scenic Rivers Act of 1968 (P.L. 90-542). It is being managed in accordance with a Plan approved in 1969. The Wild and Scenic River corridor is 104 miles long, from the headwaters of the Middle Fork to its confluence with the Main Salmon; 32,000 acres are contained within the official boundaries, including 769 acres of private lands, and 1,013 acres of Idaho state lands. The segment from Dagger Creek to 1/2 mile below Dagger Falls is classified as Scenic; the rest of the Middle Fork is classified as Wild.

That part of the main Salmon River between North Fork and Long Tom Bar is included in the study area. As the result of an inter-agency study, the 46 mile segment from North Fork to Corn Creek is classified as Recreational; the 79 mile segment from Corn Creek to Long Tom Bar is classified as Wild.

The entire study area is in the Northern Rocky Mountain physiographic province, and in the Northern Rocky Mountain floral province. Topography ranges from precipitously steep to gently rolling; vegetation includes both forested and grass-covered slopes and valleys. The area includes an historically documented "zone of interpenetration" between the Nez Perce and Shoshoni Indians; it was the site of the last major Indian war in Idaho; and it was the location of gold mining, ranching, and farming by Euro-American settlers from 1861 until the 1930's. In 1931, over 1,224,000 acres of central Idaho were designated the Idaho Primitive Area, and land uses became oriented toward recreation.

DESCRIPTION OF THE PROJECT

The cultural resource overview project reported here is the first attempt to compile all relevant and accessible records of the cultural history of the study area, to serve as a basis for developing a comprehensive cultural resource management plan. Earlier studies treat the archaeological and historical resources of the Middle Fork Wild and Scenic River. This report incorporates data from those studies, and brings them up to date. This report also compiles data on the natural environment, ethnography, history, and prehistory of central Idaho and surrounding areas, and describes a recommended program of data collection and cultural resource management for the study area.

Data Sources

Data for this report were compiled from the following sources:

- published and unpublished scholarly reports;
- government documents;
- historic and contemporary maps;
- correspondence and discussion with cultural resource specialists with research or management expertise in central Idaho.

No new oral historical data or ethnographic data were collected for this project; published sources, only, were used for these topics. General Land Office township plats on file at the Bureau of Land Management state office in Boise were reviewed, but no other archival data were used.

Library materials were obtained from the Forest Service library at the Boise Zone Office; the Archive of Pacific Northwest Archaeology at the University of Idaho; the Portland State University library; and the Principal Investigator's personal library. In addition, several Idaho archaeologists generously provided copies of unpublished reports and theses.

Limitation of Data Sources

Original site forms in the various Idaho state repositories, with a few exceptions, were not reviewed because of time and budget limitations. In most cases, necessary site-specific information could be obtained by a telephone call to the appropriate repository.

Although published versions of early explorers' journals were reviewed, secondary sources were used for much of the historical narrative, in part because few primary sources exist. Works such as those by Carrey and Conley are treated as secondary sources; although they are based on original oral historical research, many of the data reported cannot be verified from archival sources.

Except where specified, the original author's definition of archeological site types is used, in order to avoid errors of interpretation. As is evident, these definitions are not necessarily consistent from author to author. Thus, when compiling total numbers of sites, various totals will result, depending on the source used.

Ground-truthed data for historical sites and structures are scanty at best. Only a few areas (such as Big Creek) have been subject to physical examination. Data presented for the major river corridors in Carrey and Conley's popular books may or may not be accurate regarding the existence and condition of structures. Where possible, some idea of a structure's historical value and condition class is indicated, but the validity of these determinations cannot be assured without additional field data.

Much of central Idaho remains unsurveyed today. Hence, General Land Office plat maps either do not exist for much of the study area or are minimally informative. Because so few lands in the study area were filed on for homesteads, Homestead Entry Records also are lacking for all but a few parcels.

In short, data on specific cultural resources within the study area often were not available, or were not comparable from one data source to another. Additional research and analysis are necessary to improve the reliability of the site-specific data and their interpretation.

Analysis of data

Data from published and unpublished reports on prehistoric resources were displayed on maps and in tables, and were analysed to discern patterns that might be used to develop a predictive model of site location. Preliminary landform analysis, described in the text and displayed on a map accompanying this report, resulted in designation of land types on which archaeological sites may be (1) present, (2) relatively undisturbed, and (3) locatable by surface survey methods.

Data from surrounding areas of central Idaho were used as the framework for analysis of site-specific data from the study area. The Evaluations and Recommendations section of this report (Chapter 5) is based on all available data, from inside and outside of the study area. Figures and tables in the text and in the Appendices summarize this information.

Level of Effort

This report represents 850 hours of effort by the Principal Investigator, including research, analysis, and report preparation. In addition, an assistant spent 250 hours tabulating Forest Service data on historical structures and sites, and plotting map locations for selected resources.

MAJOR FINDINGS

1. The study area is a significant natural laboratory for answering major research questions about prehistoric and historic human uses.

Nearly 500 known prehistoric sites, and 580 reported historic sites and structures exist within the study area. Prehistoric site types include villages, camps, dwellings, caves and rockshelters, rock art panels, vision quest sites, hunting blinds, lithic manufacturing stations, and possibly burials. Historic site types include dwellings, industrial structures, mines, bridges, lookouts, airstrips, and groups of features, as well as places where historic events, such as the Sheepeater Campaign, occurred. Two properties are listed on the National Register of Historic Places: the Jim Moore Place and Shoup Rockshelters, both on the main Salmon River.

2. The cultural resources known to exist in the study area are associated with the major cultural themes of settlement, resource exploitation, transportation, and inter-cultural contact.

The mountains of central Idaho have been considered remote and inaccessible by Euro-Americans, yet native Americans and some early miners and ranchers settled in the "wilderness" in order to use its unique resources. Flora, fauna, and geology determined the nature of the resources; human technology and cultural patterns determined the uses to be made of these resources. Transportation affected settlement patterns, resource exploitation patterns, and inter-cultural contact both before and after the early westward

movement of Euro-Americans. Ethnic boundaries, trade and social ties, and military contacts affected the nature of inter-cultural relations in central Idaho. These four themes constitute the major topics for future scholarly research and public interpretation in the study area.

3. The known prehistoric sites represent perhaps 50% of the sites that may exist, and do not represent all of the potential site types in the study area. The known historic sites represent perhaps 90% of the sites that may exist, and are likely to represent all of the potential site types in the study area.

Previous archaeological surveys have concentrated on the major river and stream corridors, to the exclusion of upland areas. Both the Plateau and the Great Basin ethnographic patterns are known to include seasonal use of upland areas; early historic sources suggest that winter occupation of upland sites was more frequent than current ethnographic models assume. Based on these observations, it is likely that at least several hundred more prehistoric sites will be found in the study area, when targeted surveys are conducted to locate them in upland resource-use areas. In addition, it is likely that site types not now documented, such as big game kill sites, cryptocrystalline quarries, and upland hunting camps, will be located.

Historic sites associated with the activities of mining, agriculture, trapping, recreation, and Forest Service management have been reported for the study area, as well as numerous properties that represent two or more of these activities. Because of the relative visibility of historic structures, it is likely that most of these are now known; additional evidence of early historic activities may be found as sites without structures, but it is not likely that additional major classes of activities will be represented.

4. Serious gaps and deficiencies in data exist for both prehistoric and historic resources. Actions needed to remedy these deficiencies are estimated to cost from \$60,000 to \$75,000; these estimates do not include subsurface testing of prehistoric archaeological sites, which is estimated to cost from \$1,000 to \$20,000 per site (including analysis and report preparation).

Existing documentation for known prehistoric and historic resources is incomplete and inconsistent. Necessary inventory and evaluation tasks include targeted survey for prehistoric archaeological sites in the uplands and along heavily-used recreation trails; additional documentation of condition class for reported historic structures; and documentation for rock art sites known or reported to exist in the study area. Condition class data for historic structures are necessary to develop the recommendations to Congress called for in the Central Idaho Wilderness Act; the other data are needed to develop the research and protection plans as part of the Cultural Resource Management Plan required by the Central Idaho Wilderness Act.

MAJOR RECOMMENDATIONS

1. A comprehensive cultural resource management program in the study area should begin by filling gaps in existing data. This will enable Forest Service managers to know the full scope of their management job, and will enable future visitors (including scholars and scientists) to understand and appreciate the scientific and interpretive values of the cultural resources in the study area.

Existing data do not include information on time depth, cultural affiliation, or function of prehistoric sites; it is unlikely that all potential site types in all environmental situations are represented in the existing sample. Similarly, data on condition class and historical value of reported historic sites and structures are largely missing or inadequate. No data currently are available for assessing the historic archaeology potential of the study area.

Short term data needs can be met best by developing a series of targeted field surveys, to locate specific kinds of information now missing from the data base.

2. Long term research objectives should include answering questions about prehistoric adaptations to high elevation environments, the location of ethnic boundaries in time and space, the nature of cultural change and continuity, and the validity of competing models of western North American prehistory. Archival and archaeological study of historic resources should include answering questions about inter-cultural relations, resource exploitation technology and change, the "colonizing" effect of historic households, and the impact of external policies upon the internal affairs of the study area.

The study area is uniquely situated in an area of rugged mountains that was accessible to native peoples from all sides. It apparently served as a boundary or "zone of interpenetration" between two major language groups, for which substantial ethnographic and archaeological data exist. Because of its isolation from 20th century development, the study area may provide the only major undisturbed evidence needed to answer these larger questions about human prehistory.

For the same reasons, the historic uses of the study area differed from those in the more developed communities outside its boundaries, and thus the cultural remains from these historic uses can provide a unique view of the "frontier cycle" of an isolated portion of the American west.

3. Protection of known and potential cultural resources in the study area should receive high priority in management decision-making. Emphasis should be given to preventing both vandalism and project-related damage to cultural resources.

At least 10% of the known cultural resources in the study area have been damaged by vandalism, neglect, or failure to consider their values during project planning. Disproportionate numbers of prehistoric resources along the major watercourses have been damaged; disproportionate numbers of historic resources associated with Forest Service management activities have been

damaged. Protection of remaining cultural resources in the study area will require appropriate management decisions, based on sound and explicit criteria. In turn, these criteria for decision-making must be based on careful analysis of the cultural resource values of specific sites, structures, and areas. Only thus can the study area function as the unique research and interpretive resource envisioned by the Central Idaho Wilderness Act.

PREFACE

A monograph such as this one, whose objectives and format are designed by others, leaves little space for discussion of its author's approach, rationale, and biases. Clearly, these things affect what data are included and what are not; how data are analyzed and displayed; and what emphases are placed on various data categories and methods of analysis and explication. This preface discusses some of the biases underlying my approach to the research described in the body of this report.

This report is intended for two audiences: Forest Service managers, and students of past human uses--and users--of central Idaho. I have assumed throughout that both audiences could gain access to previously published works cited. Therefore, I have tried not to repeat lengthy lists of projectile point types, species names, and the like, on the assumption that interested readers could look them up. I have included such lists, however, where I felt they were directly relevant to understanding the known--and predicting the unknown--cultural resources of the study area. I also have included such lists when they are derived from unpublished or otherwise obscure sources. The same rationale was used to decide what data to include in figures. Thus, most tables and figures represent new--or at least newly organized--data, not before available in this form.

Specific locations of archaeological and historic sites are not included in the text or in tables in the body of the report for two reasons. First, much of the information simply was not available, given the inadequacies of previous data with which I was working. A shining exception to this rule is in the precise, meticulously-verified data in the Middle Fork report by Knudson et al., but that report soon will be available, and the interested reader is referred there for such data.

A more important reason is that the ultimate distribution of this report is not known to me at this time. Vandalism has taken its toll of nearly one-third of the cultural resources in the study area already; I decided that it was not necessary to provide a potential tour-guide for those who might damage these valuable resources further. Site-specific location data are included on the maps and appendices transmitted to the Forest Service along with this report. Thus, they are available for review at the Salmon National Forest headquarters, subject to the restrictions of the National Historic Preservation Act and Forest Service policy.

One reviewer of the draft suggested that I include an "hypothetical ethnography" for the prehistoric occupants of the Salmon River Mountains. Another suggested that I increase the space devoted to discussion of the "tukudeka," and summarize recently-developed models for the northern Shoshoni of these mountains. I have reflected seriously upon both of these comments, and I have tried to clarify somewhat the discussion of the "tukudeka." I remain reluctant to devote much additional energy to ethnographic model-building, though, for four reasons.

First, I have come to believe that the "tukudeka," like the "wood bison"--as separable ethnic groups or species--probably never existed outside of our Euro-American minds, and that it was only because of our own fears and

inadequacies when confronted with a remote, mountainous area that we postulated their existence: if someone or some animal actually lived in such God-forsaken land, they must be substantially different from "flat land" groups with which we were reasonably familiar.

Second, whoever lived in the Salmon River Mountains in late prehistoric times must have lived a lot like their Nez Perce neighbors (or cousins), because the land and its resources both constrained their activities and created their opportunities. Of course, the definition of lifeways before late prehistoric times awaits future archaeological and paleo-environmental research in central Idaho.

Third, if anything there are already too many ethnographic "models" potentially applicable to the study area--and not one is based on 19th century field work. Some "ethnographies" are in fact simply pastiches of early explorer's accounts, and only that by Marshall is based on field work of more than a few weeks' duration.

Finally, given the volume of ethnographic data, it now is crucial to test hypotheses derived from these data on the actual physical evidence left by the prehistoric residents and/or users of the study area. That is, until these models have been tested against the archaeological data they can be neither confirmed nor refuted. Therefore, I felt that describing the archaeological data--such as they are--was more important than creating yet another ethnographic model for central Idaho.

Some readers may feel shortchanged because of the lack of detailed discussion of projectile point typologies and of activity-focused historical themes (e.g., mining). Both topics consume many pages of published and unpublished works cited in this report, and both topics are likely to be important in later phases of research and interpretation of cultural resources in the study area. At this rudimentary stage of culture history study in central Idaho, though, it seems to me that neither is particularly important, because both are simply ideas developed someplace else and overlaid on scattered and incomplete data from the study area.

Small side-notched projectile points were made and used by the late prehistoric occupants of all three culture areas surrounding central Idaho. To use type names derived from a single such area, such as "Desert side-notch", biases one's observations unduly, especially in view of the lack of technological analysis of such named morphological "types." Similarly, although "mining" is the historic activity which probably is of greatest long-term significance in central Idaho, most sites originally associated with that activity have long since either fallen into disuse or been turned to other uses.

Most important, it is the overall integrity of setting, design, and structural fabric that determine whether a building merits preservation; it is the contextual integrity of an archaeological site that determines its potential for containing significant data. Only after these characteristics are documented and analyzed does it matter what specific activity these resources reflect, as one searches for appropriate sites and structures for answering specific research questions or for interpreting specific aspects of central Idaho history to the visitor.

The recommendations presented in the Executive Summary and in the body of this report are general and programmatic, rather than specific and detailed. Hence, I would like to use this space to make some specific suggestions about worthy topics for future research, based upon my perceptions of the existing data base. First, someone should take advantage of the massive review of Mineral Survey Notes compiled in the Idaho Primitive Area study by Cater and his coworkers, and especially the maps in that report, to analyse the potential for historic archaeology at the early mines and mining communities. By visiting these sites and comparing what is there now with what was recorded in the original notes, a potential wealth of information can be obtained.

Second, someone should travel along the "rounded ridgetops" alleged to have been major aboriginal travel corridors, and see if in fact camps occur every six to ten miles, as they should if the ethnographically-reported patterns are accurate. It would be most interesting, of course, if these camps were to be associated with the landtypes I suggest in the text as having potential for ephemeral or seasonal use by hunters.

Third, someone should examine suitable high-elevation areas for evidence of mountain sheep "traps" or other big-game hunting features, especially those areas associated with the landtypes just mentioned. Now that archaeologists have begun to look at high-elevation environments in the Cascades and Rockies, they are starting to find that prehistoric peoples used these areas far more than they expected. I have reason to believe that central Idaho will be no exception, and that we need only to look in the right places.

In conclusion, I should point out that this report is a strongly materialist document, oriented toward the physical things left behind by previous human users of the study area. It is after all these things about which management decisions need to be made, and it is by studying these sites, structures, and objects that important questions about the human past may be answered. Further, this report emphasizes the values of known and potential cultural resources for scholarly or interpretive use, in keeping with what I interpret as the main thrusts of the language in the Central Idaho Wilderness Act. And finally, this report attempts to provide a framework for choosing the course central Idaho cultural resources research and management will take for the foreseeable future. I am pleased to have had the opportunity to participate in creating that framework.

Portland, Oregon
October, 1981

ACKNOWLEDGMENTS

This report could not have been completed so quickly without the assistance of many people. Thanks go first to John Hoagland, Contracting Officer's Representative, and to Dee Jennings of the Wilderness Planning Team, Salmon National Forest. Archaeologists and others who freely provided advice, data, documents, and general encouragement include: Lillian Ackerman; Ken Ames; Lee Bennett; Keo Boreson; B. Robert Butler; Mark Druss; George Frison; Chris Fuhrman; Joe Gallagher; Jeanette Gaston; Thomas J. Green; Ruthann Knudson; Frank C. Leonhardy; Kathy Lubben; Alan G. Marshall; Marion McDaniel; Joe Moore; Max Pavesic; David Rice; Gerald F. Schroedl; Stephen D. Shawley; Cort Sims; David Sisson; Roderick Sprague; Jerry Wylie; and Jack Witherspoon.

Cartographic services were provided by Vi Agnew. Debora McLaughlin compiled the tables of historic structures. Sally Hudson of Quill Point, Inc., typed the July 31 review draft.

In spite of the best efforts of all those listed above, I remain responsible for any sins of omission or commission in the final version of this report.

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** (Deleted from this volume. On file USDA-Forest Service, Ogden, Utah --Eds.)*

CHAPTER ONE

INTRODUCTORY STATEMENTS

DESCRIPTION OF THE STUDY AREA

The study area described in this report consists of the River of No Return Wilderness (including the Middle Fork Salmon Wild and Scenic River), and the Recreational and Wild segments of the main Salmon River, Idaho. These lands are in Custer, Idaho, Lemhi, and Valley counties, and are administered by the Bitterroot, Boise, Challis, Nezperce, Payette, and Salmon National Forests (Figure 1; see Appendix A).

The River of No Return Wilderness was created by Congress in 1980 (P.L. 96-312, the Central Idaho Wilderness Act; see Appendix B). It contains over 2,239,000 acres in the Salmon River drainage of central Idaho, and nearly the entire length of the Middle Fork Wild and Scenic River.

The Middle Fork Wild and Scenic River was designated by the Wild and Scenic Rivers Act of 1968 (P.L. 90-542; see Appendix C). It is being managed in accordance with a Plan approved in 1969 (U.S.F.S. 1969). The Wild and Scenic River corridor is 104 miles long, from the headwaters of the Middle Fork to its confluence with the Main Salmon; 32,000 acres are contained within the official boundaries, including 769 acres of private lands, and 1,013 acres of Idaho state lands. The segment from Dagger Creek to 1/2 mile below Dagger Falls is classified as Scenic; the rest of the Middle Fork is classified as Wild.

That part of the main Salmon River between North Fork and Long Tom Bar is included in the study area. As the result of an inter-agency study, the 46 mile segment from North Fork to Corn Creek was classified as Recreational; the 79 mile segment from Corn Creek to Long Tom Bar is classified as Wild (U.S. Forest Service 1976a).

The entire study area is in the Northern Rocky Mountain physiographic province of Fenneman (1931), and the Northern Rocky Mountain floral province of Daubenmire (1943). Topography ranges from precipitously steep to gently rolling; vegetation includes both forested and grass-covered slopes and valleys. The area includes an historically documented "zone of interpenetration" between the Nez Perce and Shoshoni Indians; it was the site of the last major Indian war in Idaho; and it was the location of gold mining, ranching, and farming by Euro-American settlers from 1861 until the 1930's. In 1931, over 1,224,000 acres of central Idaho were designated the Idaho Primitive Area, and land uses became oriented toward recreation.

DESCRIPTION OF THE PROJECT

The cultural resource overview project reported here is the first attempt to compile all relevant and accessible records of the cultural history of the study area, to serve as a basis for developing a comprehensive cultural resource management plan. Earlier studies by Pavesic (1978) and Rossillon (1981) treat the archaeological and historical resources of the Middle Fork Wild and Scenic River. This report incorporates data from those two studies, and brings them up to date. This report also compiles data on the natural

environment, ethnography, history, and prehistory of central Idaho and surrounding areas, and describes a recommended program of data collection and cultural resource management for the study area.

Data Sources

Data for this report were compiled from the following sources:

- published and unpublished scholarly reports;
- government documents;
- historic and contemporary maps;
- correspondence and discussion with cultural resource specialists with research or management expertise in central Idaho.

No new oral historical data or ethnographic data were collected for this project; published sources, only, were used for these topics. General Land Office township plats on file at the Bureau of Land Management state office in Boise were reviewed, but no other archival data were used.

Library materials were obtained from the Forest Service library at the Boise Zone Office; the Archive of Pacific Northwest Archaeology at the University of Idaho; the Portland State University library; and the Principal Investigator's personal library. In addition, several Idaho archaeologists generously provided copies of unpublished reports and theses.

Limitation of Data Sources

Original site forms in the various Idaho state repositories, with a few exceptions, were not reviewed because of time and budget limitations. In most cases, necessary site-specific information could be obtained by a telephone call to the appropriate repository.

Although published versions of early explorers' journals were reviewed, secondary sources were used for much of the historical narrative, in part because few primary sources exist. Works such as those by Carrey and Conley (1978, 1980) are treated as secondary sources; although they are based on original oral historical research, many of the data reported cannot be verified from archival sources.

Except where specified, the original author's definition of archeological site types is used, in order to avoid errors of interpretation. As is evident, these definitions are not necessarily consistent from author to author. Thus, when compiling total numbers of sites, various totals will result, depending on the source used.

Ground-truthed data for historical sites and structures are scanty at best. Only a few areas (such as Big Creek) have been subject to physical examination. Data presented for the major river corridors in Carrey and Conley (1978, 1980) may or may not be accurate regarding the existence and condition of structures. Where possible, some idea of a structure's historical value and condition class is indicated, but the validity of these determinations cannot be assured without additional field data.

Much of central Idaho remains unsurveyed today. Hence, General Land Office plat maps either do not exist for much of the study area or are minimally informative. Because so few lands in the study area were filed on for homesteads, Homestead Entry Records also are lacking for all but a few parcels.

In short, data on specific cultural resources within the study area often were not available, or were not comparable from one data source to another. Additional research and analysis are necessary to improve the reliability of the site-specific data and their interpretation.

Analysis of data

Data from published and unpublished reports on prehistoric resources were displayed on maps and in tables, and were analysed to discern patterns that might be used to develop a predictive model of site location. Preliminary landform analysis, based on geomorphological data in Larson and Lovely (1972), resulted in designation of land types on which archaeological sites may be (1) present, (2) relatively undisturbed, and (3) locatable by surface survey methods.

Data from surrounding areas of central Idaho were used as the framework for analysis of site-specific data from the study area. The Evaluations and Recommendations section of this report (Chapter 5)) is based on all available data, from inside and outside of the study area. Figures and tables in the text and in the Appendices summarize this information.

UNIQUE LANGUAGE IN THE CENTRAL IDAHO WILDERNESS ACT

The Central Idaho Wilderness Act is the first statute relating specifically to Wilderness that requires identification and management of cultural resources within the Wilderness boundary as part of the Wilderness resource. Although the Wilderness Act of 1964 (P.L. 88-577; Appendix D) states that areas designated as Wilderness "may...contain...features of...historical value," protection and management of cultural resources has not been considered by Wilderness managers to be either a primary purpose of Wilderness, or a primary objective of Wilderness management (see, e.g., Hendee, Stankey and Lucas 1978). The history of American ambivalence to nature, natural landscapes, and the idea of "wilderness" itself is amply described elsewhere (e.g., Huth 1957; Nash 1973; Shephard 1967). This section, therefore, describes only those aspects of wilderness management that relate to cultural resources within designated Wilderness.

Archaeologists during the past decade have suggested that Wilderness designation may serve to protect archaeological resources, because Wilderness lands are not usually subject to large-scale ground disturbing activities (Green 1975; Lipe 1974, 1975). Because of ambiguities in the language of the 1964 Act relating to research, however, few programs of scientific archaeological research have been developed or carried out in Wildernesses. For example, most western Wildernesses (and some elsewhere) provide unparalleled opportunities to explore aspects of prehistoric human adaptations to high elevation environments. Yet some Wilderness managers have been reluctant to issue permits for such research, and few archaeologists have been able to solve the logistical problems connected with developing camp and laboratory facilities with no vehicular access.

Buildings and structures, on the other hand, have been subject to policies which prohibit their retention or management because of language in the 1964 Act defining Wilderness as an area "without permanent improvements or human habitation." Consequently, many historic cultural resources have been allowed to deteriorate or have been purposefully removed from Wilderness. Few western Wildernesses contain enough historic resources to justify developing a program of historic research or management, because few areas with an abundance of such resources have been designated under the 1964 Act.

In 1975, the Act creating Hells Canyon National Recreation Area (P.L. 94-199) required the Forest Service to prepare a comprehensive management plan that included specific consideration of cultural resources. The plan was to include "protection of archaeological...sites and interpretation of these sites for the public benefit and knowledge insofar as it is compatible with protection," and "preservation and restoration of historic sites associated with and typifying the economic and social history of the region and the American West." Most of the known historic and archaeological resources within the National Recreation Area boundary to which those mandates might apply fell outside the relatively narrow corridor of Wilderness along the Snake River. Hence, the question of the proper focus of cultural resource management within a Wilderness was not resolved.

Language in the Central Idaho Wilderness Act of 1980, on the other hand, is specific. The Secretary of Agriculture shall conduct a "cultural resource management program" within the River of No Return Wilderness and along the Salmon Wild and Scenic River; furthermore, he or she shall prepare a "cultural resource management plan," outlining opportunities and priorities for scientific research, protection, and interpretation for cultural resources within these areas. The Secretary also shall conduct "an inventory of...cabins and structures" and recommend to Congress, within two years, those structures that should be managed by stabilization, restoration, simple maintenance, or removal.

The cultural resource management program to be developed is to have "as its purposes the protection of archaeological sites and interpretation of such sites for the public benefit and knowledge," compatible with protection of Wilderness and Wild and Scenic River values. In addition, the plan is to be "based on adequate inventory data, supplemented by test excavation data where appropriate." Finally, all inventories and cultural resource management activities are to be undertaken in cooperation with other government agencies, and in compliance with "Federal and State historic and cultural preservation statutes, regulations, guidelines, and standards."

As this overview report documents, inventory data for cultural resources within the study area are neither complete nor well-distributed geographically. Some parts of the Wilderness have not yet been surveyed; some data on known cultural resources are missing (e.g., condition class data for historic structures, or detailed site maps for archaeological sites on the Salmon River portion of the study area). At the time this report was compiled, virtually no subsurface data existed for archaeological resources.

As this overview report also documents, however, enough data are available, or soon can become available, to begin to develop goals and criteria for management planning. For example, it is now possible to (1) identify what is known, (2) delimit the range of what is not yet known, and (3) develop

strategies for acquiring any necessary information. In addition, criteria for evaluating the research or management potential of as-yet-unknown cultural resources can be proposed on the basis of present data, subject to revision as additional data are acquired.

The question of what is "adequate data," therefore, can be addressed directly as it relates to the objectives of this report. Data compiled herein are adequate to identify a wide range of cultural resource types; important themes and functional associations of known resources; and deficiencies in geographic or topical coverage, or variations in quality of existing information. Data are not adequate to prepare detailed lists of site-specific research topics, or to prepare National Register of Historic Places nominations for selected resources or groups of resources. Additional field and archival research is necessary before such tasks can be accomplished. Therefore, recommendations for filling these short-range data needs are presented in Chapter 5, along with a list of long-range research questions that may be answered by future scholarly work in the study area.

One purpose of a cultural resource management plan, of course, is to outline such needs and prepare a logical and orderly program to fill them. In addition, by developing such a program and disseminating it widely to the scientific and scholarly communities, cultural resource managers can ensure that research opportunities are not overlooked by such communities. By the same token, the research community is able to select specific study areas or topics with some assurance that the sites they need for their research are available for study.

The Central Idaho Wilderness Act of 1980 is unique. So are the River of No Return Wilderness, its associated Wild and Scenic Rivers, and the cultural resources within their boundaries. If this report can help to stimulate cultural resources research in these areas, and provide a basis for making the necessary planning and management decisions, it will be an important first step in meeting the intent of the Act. Perhaps more significant, over the long run, it may enable scholars to settle some major anthropological and historical questions in western cultural history.

CHAPTER TWO

THE NATURAL ENVIRONMENT

People without sophisticated technology must depend directly on the land and its resources for subsistence and wealth. The definition of areas suitable for settlement, resource exploitation, travel, and ceremonial use depends on the characteristics of the land in combination with the technology available to human groups that use the land.

Neither the Indian inhabitants of the study area nor the early Euro-American and Oriental immigrants could control the land, the weather, or the natural floral and faunal resource on which their livelihoods depended. Accordingly, the following discussion of the natural environment emphasizes those aspects of the land and its resources that (1) affected past and present human use and occupancy of the study area, and (2) affect the nature of the evidence we have for that human use and occupancy.

THE LAND BASE: GEOLOGY AND GEOMORPHOLOGY

The study area is in the central Idaho portion of the Northern Rocky Mountain physiographic province. In general, the area is characterized by

...rugged terrain of sharp ridges with crestral altitudes of 7,000-9,000 feet and narrow canyons 3,000-4,000 feet deep. The upper reaches of canyons that head above 8,000 feet are glaciated and have U-shaped cross sections...but most canyons are V-shaped. Slopes are steep and range from nearly bare to heavily timbered, and most canyon bottoms are choked by brush.

[Cater et al. 1973:6]

The Salmon River Mountains are distinguished from other classic western mountain ranges because

...the separation of mountains into distinct ranges is indefinite....Most of the[se] mountains are not arranged in lines, hence have no trend and no dominating crest, only a multitude of minor crests running in all directions between the streams of a mature drainage system. Neighboring divides are in general of nearly uniform height.

[Fenneman 1931:183]

The elevation of the crests declines gradually from southeast to northwest; mountain summits are wide, and the slopes are more gradual in the central portion of the mountains than around the edges (Fenneman 1931:188,189).

Bighorn Crags constitute the highest, most rugged portion of the study area, and contain cirque lakes at and above 8,000 feet elevation. By contrast, relief in the Chamberlain Basin is low and rolling, and contains alluvium-filled valleys, marshes, and open meadows.

The Salmon River Canyon from North Fork downstream "is not noted...for sheer walls and towering heights" but for the variation in the mountainous landscape visible from the river:

the wooded ridges rising to the sky, the huge eroded monuments, the bluffs and slides, the picturesque castles and towers, the gentle wood-carpeted slopes, and the solitary crags....

[Idaho Almanac 1977:158]

Larson and Lovely (1972) divided the Idaho Primitive Area portion of the Salmon River Mountains into seven physiographic areas by combining 49 land types into larger categories based on similarities of substrate, topography, drainage, and vegetation (Figure 2). Portions of four of these physiographic areas would have been available and suitable for human occupation and use throughout the Holocene: the Salmon River Canyon lands, Upper Middle Fork Canyon lands, Rolling Basin lands, and Low Relief Fluvial lands. These four areas comprise about 45% of the Idaho Primitive Area, or about 25% of the River of No Return Wilderness. The other three areas may have been used for food procurement activities (e.g., fishing in cirque lakes), or for resource extraction (e.g., lithic material quarries, or historic quartz mining), but are unlikely to contain substantial areas suitable for settlement. For a description of these seven physiographic areas and the landtypes which comprise them, see Appendix F.

Cater et al. (1973) point out that central Idaho has been subjected to repeated deformation throughout its geologic history. In particular, the underlying rocks of the Idaho batholith have been intruded during the Eocene by volcanics and granites, resulting in locally extensive mineralization, which in turn created resources useful to human cultures. For example, over \$95 million worth of gold, silver, copper, lead, zinc, tungsten, antimony, cobalt, nickel, and mercury have been removed from mines in central Idaho since the 1860's (Cater et al. 1973:1). Most lode deposits are outside the River of No Return Wilderness boundary, but placer deposits, derived from glacial outwash and moraines, occur on stream terraces of the main Salmon River, the Middle Fork, and most major tributaries (Capps 1940:4; Cater et al. 1973: passim).

In addition, although none of the over 40 sources of obsidian and ignimbrite in the Pacific Northwest identified by Lee Sappington occur within the River of No Return Wilderness, several are within a two-day journey on foot (Gallagher, Sappington and Wylie 1979; Sappington 1981). Cryptocrystalline silica minerals (cherts, agate, jasper, chalcedony, etc.), however, are found in nodules along the main watercourses in central Idaho, and may exist as local outcrops within the Wilderness (Knudson 1981: personal communication). Quartzite, another material used for flaked stone tools, occurs in Paleozoic deposits in the southern portion of the Wilderness (U.S.D.A.-Forest Service 1978:9).

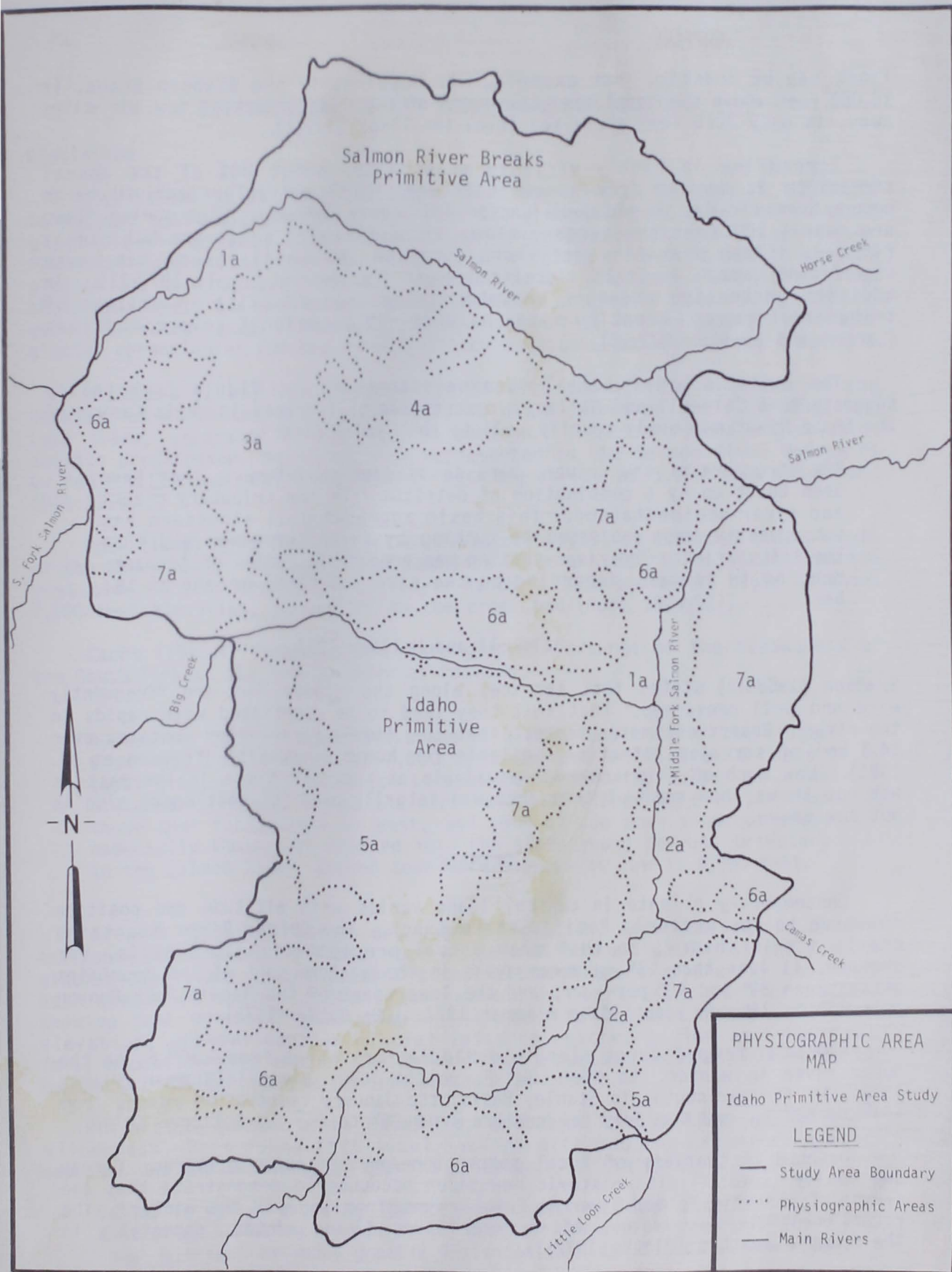
THE RIVERS:HYDROLOGY

Except for the upper few miles of the Recreational segment of the main Salmon River, and the marshy headwaters of the Middle Fork, river gradients tend to be steep, and elevation changes between the watercourses and adjacent

FIGURE 2

Physiographic divisions in the Idaho Primitive Area.

Source: Larson and Lovely 1972.



lands may be drastic. For example, Mt. McGuire, in the Bighorn Crags, is 10,082 feet above sea level, yet the mouth of the Middle Fork, a few air miles away, is only 3015 feet above sea level (Phillips 1972:1).

Streamflow is highly variable seasonally. About 80% of the annual streamflow is derived from snowmelt between April and July; peak discharge occurs from mid-May to mid-June (Larson and Lovely 1972:21). High spring flows are nearly 10 times the average flow; although large areas are but rarely flooded, "flash peak flows of short duration and small volume can cause significant damage in small, localized areas (Larson and Lovely 1972:21). In addition, extensive areas of unstable, steep slopes exist in valleys of tributary streams, creating slide hazards and occasional severe mudflows (Larson and Lovely 1972:25).

The author's brief aerial reconnaissance of the Middle Fork valley suggests that Caldwell and Mallory's description of terraces in Hells Canyon of the Snake River may apply equally well to the Middle Fork:

The structure of the river bars is of special interest...they have been built up by a combination of detritus from the tributary creeks and river sedimentation. This basic aggradational structure has subsequently been subjected to cutting by first the river and then the tributaries. The river-cutting has produced a series of terraces ranging in number...depending on the size and total height of the bar.

Caldwell and Mallory 1967:5

Swanson (1958b:1) states that terraces along the Middle Fork are "frequently wide and well preserved," that they tend to be associated with rapids in the river. Recent estimates suggest that the Middle Fork valley contains over 14.8 km² of terraces potentially suitable for human occupation (Knudson et al. 1981). How much of this area was available at specific times in the past is not now known; how much of this area was actually used for settlement also is not now known.

CLIMATE

Contemporary climate in central Idaho varies with altitude and position relative to the westerly Pacific storm track. The Salmon River Mountains create a rain shadow, so that mean annual precipitation at Challis, for example, is less than 12", whereas areas in the western part of the mountains get between 24" and 48" per year, and the lower part of the Middle Fork Canyon gets 12" to 24" per year (Idaho Almanac 1977; 102; Butler 1978).

Seasonal temperatures along the Middle Fork range from -30° F. on the upper river in winter, to over 100° F. on the lower river in summer (Platts 1972:32). Farther south, in Stanley Basin, the January temperature ranges from -43° to 54° F., and the July temperature from 29° to 86° F. (Gallager 1979:6).

Despite the variety of local temperature/precipitation patterns, Carrey and Conley (1978:14) cite historic newspaper accounts to demonstrate that the canyon of the main Salmon River is "wholly free from snow in the winter." The rivers themselves, however, often freeze over during winter, especially in their upper reaches (Platts 1972:3).

ENVIRONMENTAL CHANGE: PLEISTOCENE AND HOLOCENE

Glaciation

Studies in the Salmon River Canyon near Shoup led Swanson et al. (1969:32) to suggest that multiple stream terraces there might be "an index of multiple glaciation." Several localities within and outside of the Salmon River Mountains have yielded corroborating evidence for this idea. Lands covered by glacial ice are not available for settlement, and the action of glaciers and their meltwaters can remove substantial evidence of earlier human occupation or use of affected lands. Therefore, it is important to review some of the major glacial chronologies for the Northern Rocky Mountains and surrounding areas.

Richmond (1965) has defined five Pleistocene glacial episodes in the Rockies, of which the latest, Pinedale, is divided into an Early, Middle, and Late stage, separated by interstadial periods. Both the Pinedale glaciation and its predecessor, Bull Lake, are represented in the Salmon River Mountains by "extensive ice caps," sometimes reaching as low as 6,000 feet (Richmond 1965:221).

Ross (1929) describes an earlier Pleistocene till at Railroad Ridge, south of the study area. He states that remnants of this same till may exist on the west side of Loon Creek near the Boyle Ranch. These sediments begin at about 7,800 feet elevation, and extend to the creek bed (Ross 1929:127).

Capps (1940:4) describes the late glacial features of the headwaters of the South Fork of the Salmon River as follows:

During the last or Wisconsin stage of glaciation, most of the ridges that rose to altitudes of 7,500 feet or more were able to foster local glaciers, and these ice streams moved down the valley for some distance. The glaciers on the north and east slopes were larger than those that faced south or west, and some of the more vigorous ones, especially those that drained into the steep young canyons tributary to the Salmon River, pushed down to altitudes as low as 4,000 feet.

As Dort (1965:29) reminds us, onset of glaciers does not require drastic environmental change; in fact, most of central Idaho "is only slightly below glacial conditions at the present time," although there apparently has never been sheet ice south of the Idaho panhandle. Dort cites earlier studies showing that Wisconsin glaciation was limited to valleys around 7,000 feet elevation, whereas earlier glacial episodes reached as low as 5,000 feet. Thus, a considerable area of the Salmon River Mountains probably was affected by glacial ice during some portion of the Pleistocene.

In a study of the Lemhi Mountains, southeast of the River of No Return Wilderness, Dort found that local factors affected the extent of glacial deposits and the intensity of glacial episodes. He states (1962:2) that

valley to valley and stage to stage contrasts in local micro-climates controlled relative distances of glacial advance. Some Bull Lake age glaciers extended greater distances than did Pinedale age ice

in the same valleys; many did not advance as far. Furthermore, elevations of terminal moraines for a specific stage vary markedly from one valley to another.

Nearly every valley over 9,200 feet that did not face south had glacial activity during Pinedale time, although local conditions influenced the specific behavior of each glacier (Dort 1962:7). More recent research has defined a sequence of 7 late glacial episodes for the Lemhi Range (Knoll 1973).

After the retreat of the continental glaciers about 12,000 years ago, local episodes of "neo-glaciation" occurred in western mountain ranges. Kiver (1974) correlates four such episodes across the Colorado/Wyoming Rockies, the Wallowas of northeastern Oregon, the Sierra Nevada of California, and the Cascade Range in Washington. These episodes have different names in each locality, but correspond to periods from 12,000 to 6,600 years ago, 4,500 to 2,600 years ago, 1,900 to 950 years ago, and 600 years ago to the present (Kiver 1974:170). Further, Kiver suggests (1974:190) that "glacier-producing conditions" were more intense in the early Neoglacial in the Rockies "than would be expected based on present climatic patterns." Although glaciers existed in the higher mountains, not all areas of central Idaho were covered with ice at all times during the Pleistocene. Sargeant (1973:38) states that "some parts of the Stanley Basin and Redfish Valley southeast of the Wilderness were no doubt ice free at one time or another during the entire Pinedale glaciation." Similar low-lying areas within the Wilderness also may have been ice-free, and thus available for human use during this time.

Recent research in high-altitude areas in the western United States suggests that soil development can occur during glacial episodes as well as during interglacial episodes. Time (i.e., duration of exposure to development processes) rather than climate seems to be the factor exerting the major control over soil development in stable sediments (Birkeland and Shroba 1974). Because most of the post-Pleistocene climatic sequences have been developed by studying "soil forming episodes" in archaeological sites in areas surrounding the Salmon River Mountains, it is important to remember that "soil development = interglacial episode" is not always an accurate inference.

Volcanic events

Holocene eruptions of several volcanic vents in the Cascade Range of Oregon and Washington have provided a useful geochronological tool, where ash layers are preserved in their original depositional environments. Because the prevailing winds in the Northwest are westerlies, ash from these vents tends to be distributed in a wide arc to the east of the Cascades, across the Columbia Plateau and the northern Great Basin, and occasionally to and across the Rockies. Refinements in methods of identifying and dating ash from eruptions of Glacier Peak (about 12,000 years ago) and Mt. Mazama (about 6,700 years ago) have enabled these events to be used as time markers for dating both natural and archaeological deposits (Fryxell 1965; Fryxell and Daugherty 1963; Powers and Wilcox 1964; Smith, Okazaki and Knowles 1977; Steen 1965; Steen and Fryxell 1965). Ash layers attributed to the Mt. Mazama eruption have been identified in archaeological sites in Birch Creek and in southern Idaho (Swanson 1972). It is likely that subsurface investigation of archaeological sites in the Wilderness will reveal useful ash layers from one or more Cascade vent.

Climatic change

Studies from areas surrounding the River of No Return Wilderness demonstrate that climatic change has occurred in the Northern Rocky Mountains throughout the Holocene. Lost Trail Pass Bog, 60 km north of Salmon, Idaho, contains over 6 meters of sediment spanning the last 12,000 years. Pollen studies have defined a sequence of vegetation (and inferred climatic) changes covering this period (Mehring et al. 1977). The sequence begins with cold steppe vegetation just after deglaciation, followed by an influx of whitebark and lodgepole pine (*Pinus albicaulis* and *P. contorta*, respectively), implying moister but still cool conditions from around 11,500 to 7,000 years ago.

This vegetation community gives way to one dominated by Douglas fir (*Pseudotsuga menziesii*) and larch (*Larix occidentalis*) between 7,000 and 5,000 years ago, implying yet a warmer environment. From 5,000 to 4,000 years ago the proportion of pines and spruce (*Picea* sp.) increases, while Douglas fir and larch decrease, implying a cooling period. From 4,000 years ago to the present, the vegetation (and by implication, the climate) is more or less stable, and more or less like that of today (Mehring et al. 1977:363-364).

Although the specifics vary from place to place, other studies of natural vegetation changes in the Northern Rocky Mountains and in southern Idaho have discovered sequences similar in broad outline to the one just described. Knudson et al. (1981) reviews these sequences in more detail, so that information will not be repeated here.

Climatic sequences in the western United States of particular interest to archaeologists and historians were defined originally in terms of a three-period framework developed by Antevs (1948, 1955; see Baumhoff and Heizer 1965). Antevs noticed changes in sediment types in stratified archaeological sites, which he correlated with similar changes in Europe. His "neothermal sequence" consists of three parts, called the Anathermal, Altithermal, and Medithermal. The Anathermal was supposed to be cooler and more moist than today's climate; the Altithermal, warmer and dryer; the Medithermal, similar to today's climate. Archaeologists used this framework to explore cultural "adaptations" to changing climates, and as a means for assigning relative dates to cultural materials associated with a certain inferred climate (e.g., artifacts associated with a cool, moist environment were thought to be "early").

As discussed above, recent studies have shown that the degree, direction, and areal extent of climatic change is highly variable throughout the arid west, although the general outline of the sequence remains a useful model. For example, Swanson (1972) defines seven climatic "periods" by correlating sediment types, rockfall frequencies, and associated faunal materials from eight archaeological sites in eastern and south-central Idaho. In addition to between-period variations, Swanson sees a steady warming trend over the last 12,000 years, with internal fluctuations which can be characterized as a "regular erosional cycle" of three alluvial intervals separated by three erosional intervals (1972:176). Swanson asserts that "what the Neothermal sequences sic really identifies is the climatic character of each of the three Recent alluvial cycles" (1972:167; see also Swanson and Muto 1975).

Antevs' sequence is based on the effects of temperature on soil development and other characteristics of sediments. Aschmann (1958:24) rightly emphasizes that in semi-arid environments (such as southeastern Idaho), precipitation may be a more important climatic parameter. In particular, the seasonal distribution of precipitation is crucial, especially as it is related to the incidence of flooding, effectiveness of seed germination, and accessibility of land due to variations in snowpack depth (see also Dominick 1964:150). Aschmann states further that "few of the changes in character of the stratigraphic columns in archaeological sites require a pronounced climatic change for their explanation" (1958:36).

As Bryan and Gruhn (1964:307) point out, it is necessary to have "direct independent evidence of the actual climatic conditions which existed" in an area in order to build a local version of the Neothermal sequence in that area. It is not possible at this time to build a local climatic sequence in the River of No Return Wilderness, because there are no applicable data from within the Wilderness. It is unlikely, however, that the Wilderness portion of central Idaho was unaffected by climatic events which are known to have occurred throughout western North America during the Holocene. Therefore, it is important to remember that the types, abundance, and distribution of land-based natural resources (such as flora and fauna) may have varied greatly in central Idaho since the retreat of the glaciers about 12,000 years ago. Indeed, even the land itself may have changed, with erosion, aggradation, and other geomorphic processes occurring in response to both large-scale and small-scale climatic variations.

THE BIOLOGICAL BASE: FLORA AND FAUNA

Flora

It is important to know the distribution of plant species and the composition of plant communities because certain plants were staple human foods, others provided fuel and building materials, still others provided raw materials for tools, and many provided food for game animals, which in turn were hunted by native and immigrant American alike. A general description of the vegetation in the study area is difficult because of the variety of its micro-environments, conditioned by climate, slope, aspect, altitude, and substrate. Therefore, the following description of the central Idaho flora, while not usually site-specific, emphasizes the types of environments suitable for certain species useful to humans.

The vegetation of central Idaho, including all of the study area, usually is assigned to the Northern Rocky Mountain flora, which includes some Pacific Coast species on its west side. Daubenmire (1943) divides this flora into at most four broad zones: (1) alpine tundra at the highest elevations; (2) coniferous forest at mid-elevations; and (3) desert or (4) grass biomes at the base of the mountains. The forest vegetation he divides into six zones, which are roughly altitudinal, and usually sequential from top to bottom along the mountain slope.

At the highest elevations is the Alpine Tundra zone, which, due to the rugged topography of the Rockies is rarely continuous but rather occurs as "islands in a sea of forest" (Daubenmire 1943:331). Typical plants of the alpine tundra that are important to humans or to game animals include Carex (sedge), Poa, and Festuca (both grasses), which inhabit more favorable areas in the alpine environment. The next zone, subalpine fir/spruce, is composed of Abies lasiocarpa, primarily, with mountain hemlock (Tsuga mertensiana) in some areas. Huckleberry (Vaccinium spp.) is a characteristic ground cover, and lodgepole pine (P. contorta), Douglas fir, and aspen (Populus tremuloides) may invade following fire. At the upper tree line, specimens of whitebark pine and Lyall's larch (Larix lyallii) may occur.

The Douglas fir zone is next lower on the mountain slope, but is mixed with Grand fir (Abies grandis) on the west-facing slopes of central Idaho. Whitebark pine occurs in this zone on windswept ridges. The ponderosa pine (P. ponderosa) zone is a fire-resistant community below the Douglas fir zone, often invaded by brush species such as Ceanothus (snow brush, buckbrush) after disturbance by fire. Aspen occurs in this zone along streams, with cottonwood (Populus sp.) and elder (Sambucus sp.) present on floodplains and terraces.

The "juniper/pinyon" zone does not occur as such north of the Snake River Plain, although some scattered juniper communities often are associated with limber pine (P. flexilis) in this position on the mountain slope (Daubenmire 1943:341). This zone often appears as a woodland savannah, with grasses such as Agropyron, Poa, and Stipa, and shrubs such as snow brush, Purshia (rabbit brush), and Artemisia (sagebrush) interspersed among the trees.

In the complex mountain ranges of the northern Rockies, these vegetation zones often are interfingered, with lower zone plants growing upward on slopes, and higher zone plants growing lower in canyons. Temperature inversions, common at night, cause a "thermal belt" of warmer air at elevations 700 to 1,700 feet above the valley floor. Such inversions occur in central Idaho on nearly every night between 1 May and 30 September, with temperature differentials up to 18° F. (Daubenmire 1943:349). This thermal belt influences the distribution of both plants and animals.

A special feature of the northern Rockies flora is the presence of "mountain parks" of grasses, where forest tree species do not grow. Daubenmire (1943:383-386) suggests that these parks are caused by limitations of soil texture and/or moisture. The treeless areas of the Chamberlain Basin, in the River of No Return Wilderness, are probably examples of such "parks" (Phillips 1972:2).

Another peculiarity of the central Idaho flora is highlighted by Horton (1972:2, quoted in Pavesic 1978:3). Horton points out that the southern portions of this flora are influenced by the Great Basin and Wasatch Mountains, whereas the Salmon River Breaks and Chamberlain Basin may be considered "pure" versions of the Northern Rocky Mountain flora. The effect of this intersection of major flora on human cultural adaptations is not precisely known, but should be considered when generalizing about the applicability of ethnographic models (see Chapter 3).

Despite the difficulty of generalizing, certain regularities in plant distribution in the study area are evident. Three of Daubenmire's six zones occur: ponderosa pine, Douglas fir, and spruce/fir (Phillips 1972:2).

Whitebark pine occurs in extensive stands on ridges, and ponderosa pine occurs in fire-created openings in the two higher zones (Phillips 1972:3). Limber pine, cottonwood, and aspen are locally present (U.S.D.A.-Forest Service 1978:10). Understory species include pinegrass (Calamagrostis rubescens) in the Douglas fir communities, and grouse whortleberry (Vaccinium sp.) in the lodgepole pine communities. Shrub species include ninebark (Physocarpus sp.), creeping barberry (Mahonia repens), spirea (Spirea sp.), and bearberry (Arctostaphylos uva-ursi) on lower and middle ranges, with whortleberry (Vaccinium sp.), sedges, and grasses at higher elevations.

Grass and shrub communities dominate south- and west-facing slopes, and the lower elevations in river canyons. Various bunchgrass, sage/grass, and alpine grass communities exist on the lower, middle, and higher reaches of these slopes, respectively. Phillips (1972:2) points out that grass biomes are relatively extensive along the Middle Fork, with Agropyron on south and west facing slopes, and Festuca (fescue) on north and east facing slopes. These differences may affect distribution of big game animals, for mountain sheep (Ovis canadensis) seem to prefer feeding on fescue, whereas elk (Cervus sp.), deer (Odocoileus sp.), and antelope (Antilocarpa americana) will graze on either fescue or wheatgrass (Martin, Zim and Nelson 1951).

Lewis (1974) reports species distributions for plant species collected in central Idaho, by habitat type. Some species, e.g., camas (Camassia quamash), are unaccountably missing from his collections; much of the Wilderness is potentially rather good camas habitat (Statham 1975). For other species, however, Lewis provides useful data on specific habitat requirements and vegetation associations, not available elsewhere.

Forest vegetation in the Rocky Mountains is fire-dependent; suppression of fires since the beginning of the 20th century has altered species composition, community succession, and other characteristics of the natural vegetation (Habeck and Mutch 1973). Lightning-caused fires are common in the Wilderness today (U.S.D.A.-Forest Service 1978:10); Arno's studies in western Montana show that fire has been common along the Continental Divide since the mid-1700's (Arno 1976). Fire frequency varies with elevation, and forest community type; fires occur about once every six years in ponderosa pine communities at low elevations, but only about once every 41 years in the higher elevation lodgepole and whitebark pine communities. Certain species are so "fire adapted" their seeds will not germinate unless they are heat-treated; stands of these fire adapted species occur within the various zonal communities, and are good indicators of fires having been present (Lyon and Stickney 1976; Daubenmire 1943).

Fire also has an effect on resident wildlife populations. Fire can kill wildlife, and post-fire erosion can cover spawning gravels of anadromous fish or even block watercourses altogether, but many other effects of fire are beneficial. For example, early post-fire successional communities often are composed of shrub and grass species eaten by large herbivores such as elk, mountain sheep, and deer; fire also can increase the yield of berry-producing plants such as huckleberry (Vaccinium sp.), eaten by both wildlife and humans (Thomas 1979; Wright and Heinselman 1973). Most important, "fire controls the scale of the total vegetation mosaic" (Wright and Heinselman 1973:324).

That pre-contact Indians knew of these effects, and used fire consciously to gain environmental benefits, is suggested by data from the Bitterroot Range, Lost Trail Pass Bog, and the Bitterroot Valley of western Montana (Arno 1976; Mehringer, Arno and Peterson 1977; Barrett 1980). Barrett's data are especially interesting: fire frequency intervals in the Bitterroot Valley doubled after Euro-American settlement in 1860, and doubled again after 1911.

Preferred habitats of plant species used by Indians in central Idaho are listed in Table 1. Few of these species have been subjected to autecological research, and little specific distributional information is available for the study area, except as follows (see Figure 3):

1. Syringa sp., used for arrowshafts by the Indians (and currently Idaho's state flower), has been observed in all the canyons, and reported in print for Big Creek Canyon (Dahlstrom 1972).

2. Chokecherry (Prunus virginiana) and serviceberry (Amelanchier sp.) seem to be restricted to north and east facing slopes at higher elevations (Phillips 1972).

3. Camas is reported from the upper reaches of Camas Creek, and suitable camas habitat is scattered throughout the study area (Carrey and Conley 1980; Hitchcock and Cronquist 1973; Rydberg 1922). Statham (1975) found that soil order, acidity, and slope affected the distribution of camas, within an elevational range from 5,000 to 7,000 feet above sea level. Camas habitats tend to be associated with Mollisols on level or gentle slopes; alkaline or neutral soils tend to produce larger bulbs than do acid soils. In fact, of the 34 localities Statham studied, she reported that Ayers Meadow had the "densest stands observed anywhere during the survey" (Statham 1975:69)

4. Big huckleberry, a seasonal staple throughout the Columbia Plateau, seems to prefer acid soils, and grows most profusely in association with subalpine fir and beargrass (Xerophyllum sp.), both of which occur in the study area. Annual berry production, however, seems to depend on climatic conditions, with unseasonal rains and/or high winds decreasing the yield per plant (Minore and Dubrasich 1978).

The effect of climatic change on vegetation communities in Idaho has not been studied in detail, but Butler (1976:27) suggests that the sage-grass biome in southern Idaho did not become established there until about 7,000 years ago because the climate was not suitable before then. Swanson (1972:50), on the other hand, argues that floral communities were stable in terms of species composition, but their altitudinal limits may have been affected by climatic changes. Clearly, the influence of the Pacific storm track is seen in the species distributions in central Idaho (Daubenmire 1943), and changes in the location of the storm track (and the intensity and seasonality of the storms it brings) may affect local flora. Vegetation, like the land itself, is a dynamic thing, and inferences about the past should not be made solely on the basis of its present nature or distribution.

TABLE 1

PREFERRED HUMAN FOOD PLANTS IN CENTRAL IDAHO

Scientific/common name Remarks	Ethnographic group
<u>Alectoria jubata</u> , pinemoss Occurs throughout forests; preferred in high mountains (M)	NP
<u>Allium</u> spp. Occurs in shallow rocky soil, esp. those subject to frost heaving (M); various species range from low to high elevations, but do not occur in grand fir zone (L); not stored (M).	NP
<u>Amelanchier alnifolia</u> , serviceberry Occurs on streambanks, moist hillsides in woods or in the open (F); type in canyons is distinctive (M); occurs in PP, DF, GF, AF zones (L); <u>A. utahensis</u> is preferred species (M).	NP, S
<u>A. utahensis</u> , serviceberry Similar to <u>A. alnifolia</u> ; type in mountains preferred (M).	NP
<u>A. glabra</u> , serviceberry Not reported in central Idaho (L).	S
<u>Balsamorhiza sagittata</u> , balsamroot Prefers high ridges within canyons (M); open slopes in PP, DF, AF zones (L); root baked, stems eaten fresh (M).	NP
<u>B. incana</u> , sunflower Prefers dry soils, esp. in plateaus (M); not reported in central Idaho (L); a seasonal food supplement (M).	NP
<u>Brodiaea douglasii</u> , wild hyacinth Occurs in moist deep soils in canyons and plateaus (M); and in open woods in the DF zone (L); has a long gathering period (M).	NP
<u>Calochortus ewiycarpus</u> , Mariposa lily Occurs in seasonally dry marshes and floodplains (M); dry to moist openings and slopes in the DF, GF, AF zones (L); a seasonal food supplement (M).	NP
<u>C. nutallii</u> , Mariposa lily Occurs in dry, well drained plains or hillsides at low elevations (F); not reported for central Idaho (L); found at Big Camas Prairie (F).	S

Note: Ethnographic groups are NP=Nez Perce, S=Shoshoni;
 Habitat data from Franzen 1978 (F); Lewis 1974; and Marshall 1977 (M);
 Ethnographic uses reported for Nez Perce by Marshall 1977; for Shoshoni by Franzen 1978;
 Habitat abbreviations are: WBP=whitebark pine; AF=subalpine fir; GF=grand fir; DF=Douglas-fir; LPP=lodgepole pine; PP=ponderosa pine; from Lewis (1974).

- Camassia quamash, camas NP, S
Occurs in moist open meadows and streambanks (F, M); a major dietary staple for all ethnographic groups in central Idaho.
- Carum gairdneri, yampa S
Occurs in meadows, open hillsides, damp soils, associated with aspen (F); not reported in central Idaho by (L).
- Celtis douglasii, hackberry NP
Occurs on low alluvial fans of primary streams; limited to this distinctive habitat type (M).
- Chenopodium rubrum, pigweed, goosefoot S
This species occurs in wet soil (F); three others are reported for dry soil (F); C. album is the only species reported by (L), and occurs in the PP and DF zones.
- Cirsium scariosum, elk thistle NP, S
Occurs solitary, in plateaus and mountain meadows (M); in DF, GF, and AF zones (L); in moist to wet soil, in valleys to 8,000 feet (F); not stored (M).
- Claytonia lanceolata, spring beauty NP
Occurs in prairies, PP zone, and stream terraces (M); in damp sites in the AF zone (L); a food supplement (M).
- Crataegus douglasii, hawthorn NP
Occurs along streams, canyons, and plateaus (M); not reported by (L); stored for the winter (M); also includes C. columbiana.
- Elymus sp., rye grass S
Prefers deep soils, in the open and in PP and DF zones (L).
- Frasera fastigiata, fraseria NP
Occurs in the lower PP zone and wet meadows (M); other species occur in DF zone and above (L); a seasonal food supplement (M).
- Fritillaria pudica, yellowbell NP
Occurs on steep slopes with deep, moist, stable soil; a supplemental food (M).
- Helianthus annuus, sunflower S
Occurs at low, moderate to 7,000 feet elevation, moist to dry soil (F); not reported in central Idaho by (L).
- Lappula or Haekelia sp., stickseed S
Some species occur in damp openings in DF, AF zones; two species in open slopes in GF, DF, and AF zones (L); reported to be in dry areas by (F).
- Lewisia rediviva, bitterroot S
Occurs on stony hills, ridges, slopes, and plains to 8,000 feet, with grass and sage (F); some species on damp sites in AF, WBP zones (L).
- Lomatium dissectum, lomatium NP
Occurs on slopes of major river canyons, on fine-textured, well-drained soils (M); PP, DF zones (L); a "starvation food" (M).

- Lomatium salmoniflorum, lomatium NP
Occurs on rocky, shallow soils, or inactive talus (M); the earliest major food plant gathered in the spring (M).
- Lomatium canbyi, lomatium NP
Occurs in shallow soils, especially on ridgetops (M); the "most valued spring plant" of the Nez Perce (M).
- Lomatium grayi, lomatium NP
Occurs in canyons, densely in limited areas (M); in warm dry open areas in PP and DF zones (L); stems, not the roots, were used (M).
- Lomatium triternatum, lomatium NP
Occurs in rocky, well-drained, or frost-heaved soils (M).
- Lomatium cous, cous (kouse), biscuitroot NP
Occurs in well-drained soils, canyons and ridges (M); not reported in central Idaho by (L); this plant was intensively gathered, and stored (M).
- Lomatium sp., lomatium (unidentified) NP
This species was preferred to cous, but more rare, and not stored (M).
- Oryzopsis sp., Indian rice grass S
Occurs in sagebrush-grassland (F); not reported in central Idaho by (L).
- Perideridia gairdneri, yampa, wild carrot NP
Occurs in prairies, open pine forest (M); one species in woods and open slopes of the DF zone (L); a highly favored plant food, that was stored (M).
- Pinus flexilis, limber pine S
Reported as "occasional" in the LPP zone in central Idaho (L).
- P. albicaulis, whitebark pine S
Occurs in WBP zone, and some in DF zone (L).
- Prunus virginiana, chokecherry NP, S
Occurs in canyons and on plateaus (M); moist woods and grasslands in DF, GF, and AF zones (L); used fresh, and stored too (M).
- Ribes aureum, golden currant NP
Occurs in canyons (M); in open woods of the DF zone (L); Amelanchier alnifolia was preferred to this foodstuff (M).
- Ribes spp., gooseberry NP
Occurs in foothills and plateaus (M); damp places, in the open or in the woods in the DF zone and above (L); used green, ripe, and stored (M).
- Rosa nutkana, rose hip NP
Occurs in thickets in moist grasslands (M); not reported in central Idaho by (L); used if other foods not plentiful (M).
- R. woodsii, wild rose S
Occurs in moist soils along streams (F); woodlands and canyon bottoms, PP and DF zones (L).

Rubus parviflorus, thimbleberry

NP

Occurs in open woods in the GF and AF zones (L); a fire-seral species (M); the kind that grows in the mountains preferred by Nez Perce (M).

Sambucus racemosa, mountain elderberry

NP

Occurs in woods and open areas, in the AF zone (L); in the foothills of the Bitterroot Range; a fire-seral species (M); preferred to S. cerula (M).

S. cerula, elderberry

NP

Occurs in the lowlands, in well-watered and protected areas (M); stored, but not preferred to species above (M).

Sophia/Descurainia spp., tansymustard

S

Occurs in dry soil, valleys (F); occasionally in AF zone (L).

Typha latifolia, cattail

S

Occurs in moist or wet areas below 7,000 feet (F); not reported in central Idaho by (L).

Vaccinium globulare, huckleberry

NP

Common in moist areas of DF, GF, AF zones (L); fire-seral (M); this and serviceberry are major berry foods for the Nez Perce (M).

V. scoparium, fireberry, grouseberry

NP

Occurs on high altitude ridges in second-growth timber (M); frequent in moist woods, AF, LPP zones (L); production quite variable (M).

Valeriana edulis, tobacco root

S

Occurs in moist open places, and dry meadows and slopes (F); in the DF zone (L).

FIGURE 3

Seasonal abundance of major vegetal foodstuffs in central Idaho.

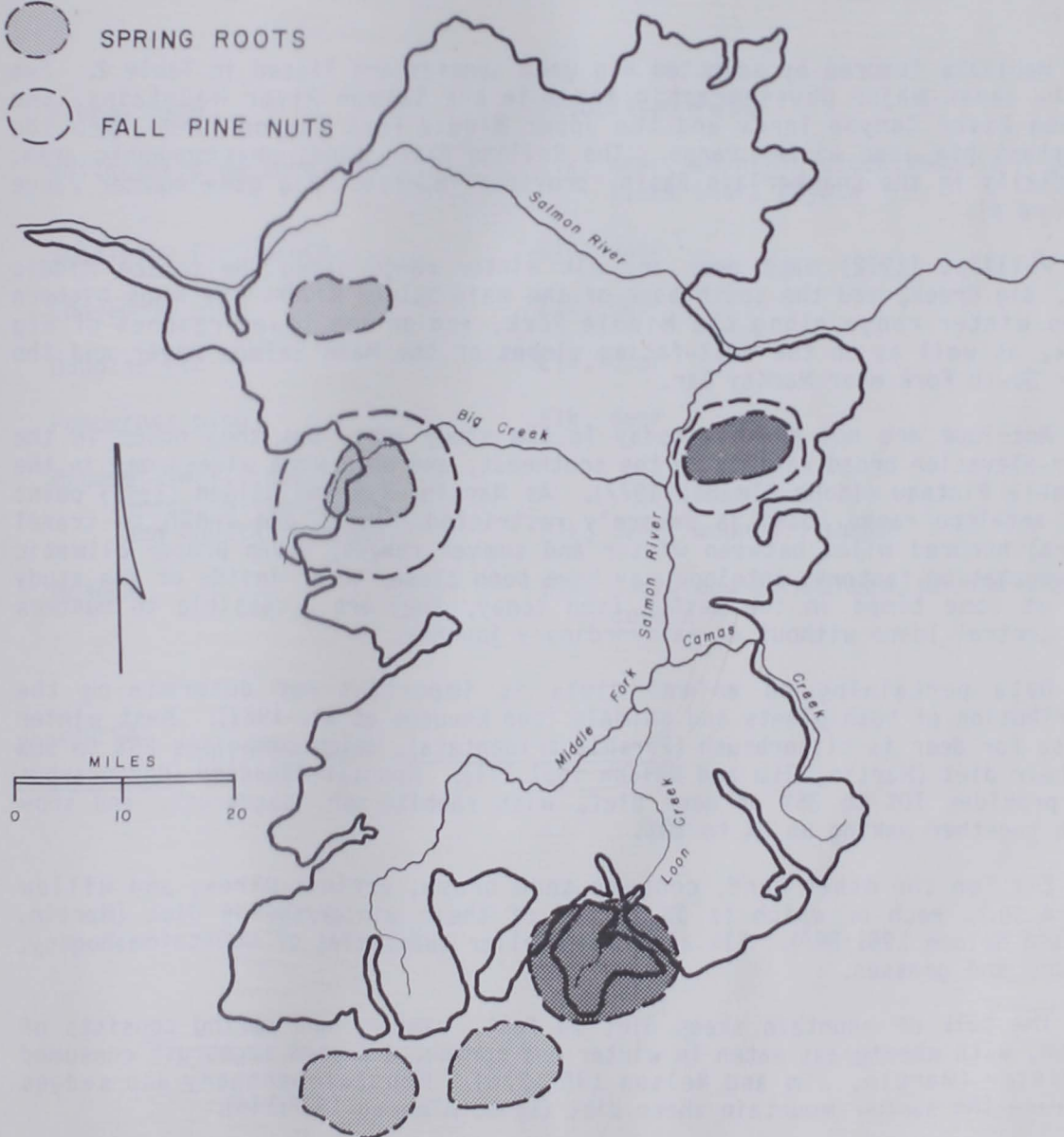
Source: Knudson et al. 1982.

FOOD PLANT DISTRIBUTIONS

● LATE SUMMER ROOTS

○ SPRING ROOTS

○ FALL PINE NUTS



RIVER
OF NO RETURN
WILDERNESS

figure 3

Fauna

Big Game

The study area today supports a varied fauna, with over 190 species of large and small animals, rodents, and birds (U.S.D.A.-Forest Service 1978). The discussion here focuses on those species used as major sources of food, tools, clothing, and trade items by the Native American inhabitants of central Idaho.

Habitats favored by selected big game species are listed in Table 2. Two of the seven major physiographic areas in the Salmon River Mountains, the Salmon River Canyon lands and the Upper Middle Fork Canyon lands, provide important big game winter range. The Rolling Basin lands physiographic area, especially in the Chamberlain Basin, provides important big game summer range (Figure 4).

Phillips (1972) maps deer and elk winter range along the entire Middle Fork, Big Creek, and the south bank of the main Salmon River. He maps bighorn sheep winter range along the Middle Fork, and on the lower reaches of Big Creek, as well as on the west-facing slopes of the Main Salmon River and the lower South Fork near MacKay Bar.

Antelope are not present today in the study area, but they occur in the lower-elevation broad valleys to the southeast, and once were widespread in the Columbia Plateau (Idaho Almanac 1977). As Martin, Zim and Nelson (1951) point out, antelope range today is severely restricted. Herds are known to travel several hundred miles between winter and summer ranges; given proper climatic and vegetation factors, antelope may have been closer to or inside of the study area at some times in the past. Even today, they are accessible to hunters from central Idaho without an extraordinary journey.

Data pertaining to animal diets is important for determining the distribution of both plants and animals (see Knudson et al. 1981). Most winter browse for deer is bitterbrush (*Purshia tridentata*), which comprises 25% to 50% of their diet (Martin, Zim and Nelson 1951:171). Mountainmahogany (*Cercocarpus* sp.) provides 10% to 25% of deer diet, with rabbitbrush, sagebrush, and snow brush together making up 5% to 10%.

Elk, on the other hand, consume snow brush, various pines, and willow (*Salix* sp.), each of which is 5% to 10% of their winter/spring diet (Martin, Zim and Nelson 1951:267). Elk also eat smaller quantities of mountainmahogany, poplar, and grasses.

The bulk of mountain sheep diet in fall, winter, and spring consists of fescue, with wheatgrass eaten in winter and spring, and some sagebrush consumed in winter (Martin, Zim and Nelson 1951:276). Mountainmahogany and sedges comprise the summer mountain sheep diet (Idaho Almanac 1977:144).

Of the large mammals native to the study area, mountain sheep may be the most significant ethnographically (see Chapter 3). Their range is more restricted than that of either deer or elk; their skins and horns were highly

TABLE 2

FAUNAL SPECIES ASSOCIATED WITH VARIOUS FLORAL ZONES IN CENTRAL IDAHO

Floral zone	Associated fauna
Whitebark pine/subalpine fir	Elk, deer, mountain sheep, mountain goat, black bear, coyote
Subalpine fir/spruce	Elk, deer
Lodgepole pine	Elk, deer
Douglas fir	Elk, deer
Ponderosa pine	Elk, deer
Browse (incl. sage/grass, grass, bitterbrush, and mountainmahogany)	Elk, deer, mountain sheep
Meadow	Elk, deer, mountain sheep, mountain goat, coyote

Source:

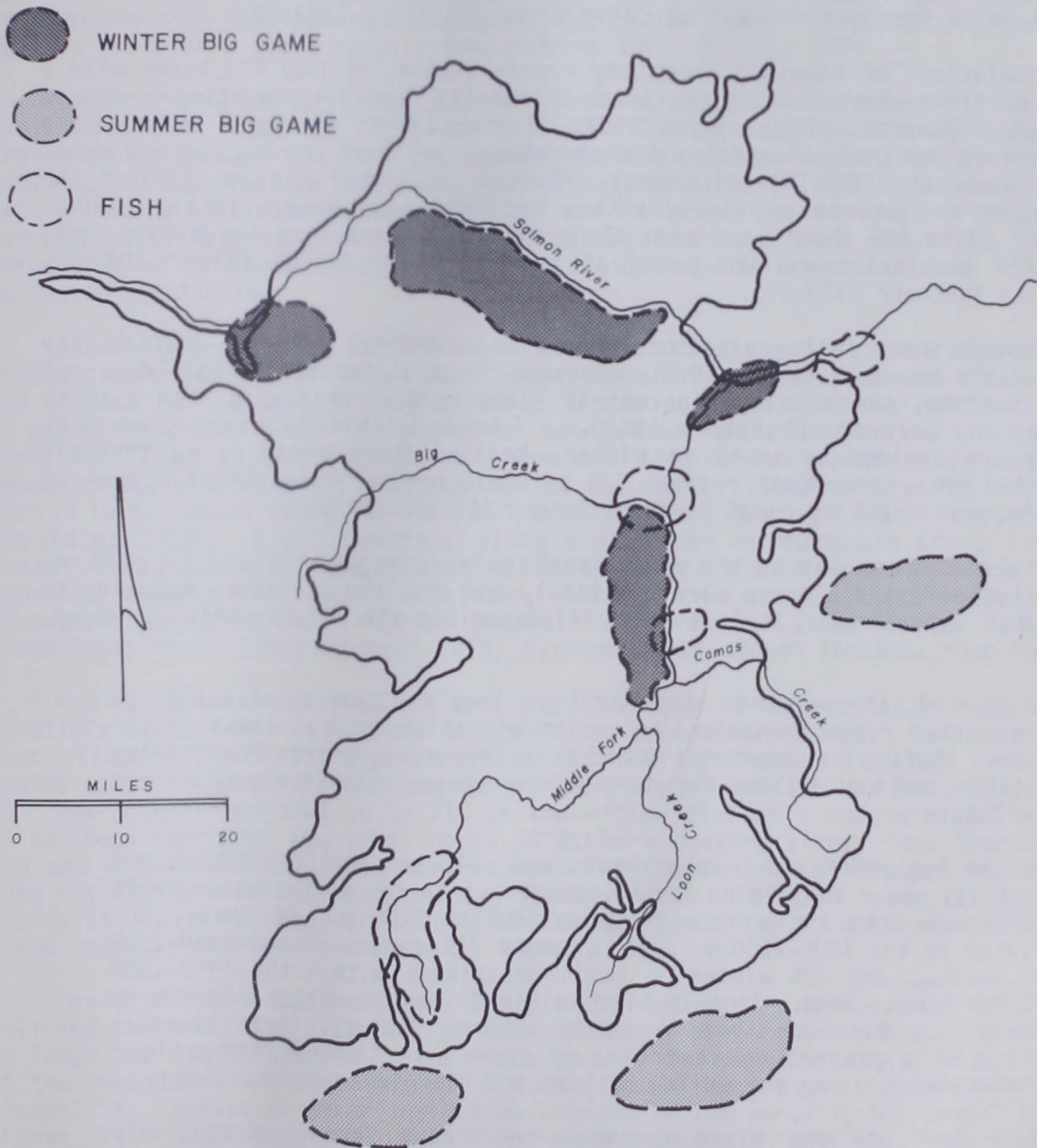
Phillips 1972

FIGURE 4

Seasonal distribution of big game in central Idaho.

Sources: Knudson et al. 1982; Phillips 1972; Platts 1972.

BIG GAME AND FISH DISTRIBUTIONS



RIVER
OF NO RETURN
WILDERNESS

figure 4

prized as local commodities and as trade goods among the Indian populations of the northwest, and were used for robes, clothing, and tools; and they played a large role in the diet of the "sheepeater Indians" who are alleged to have occupied the Salmon River Mountains. The nature of the terrain apparently is more important than vegetation in controlling the distribution of bighorn sheep; sheep need rugged land, and accordingly are found most frequently along the lower reaches of the Middle Fork. Today, less than 12% of the present population is found upstream from Camas Creek (Phillips 1972:10).

Populations of mountain sheep may remain stable, or may fluctuate wildly as a result of interspecies competition (primarily from elk), hunting pressure, or disease (Buechner 1960; Smith 1954; Stelfox 1976). Evidence of mountain sheep occurs in archaeological sites throughout the west during the Holocene, but as Buechner (1960:14) points out, "hunting pressure" did not "drive" the sheep into the mountains, because they were already there. In the 1890's, bands of 60 to 100 sheep were seen along the upper reaches of the Middle Fork; the total population was estimated at from 2,000 to 2,5000 (Miner 1897:301 quoted in Buechner 1960:25).

Bighorn sheep follow a seasonal round in accordance with the availability of palatable browse (Stelfox 1976). Because "true alpine vegetation" does not exist in Idaho, summer range in central Idaho is less desirable than that in Wyoming and Colorado (Buechner 1960). Areas with snow over 30 cm deep usually are avoided by sheep in winter, because their mobility is severely restricted when snow depth reaches 2/3 of chest height; they cannot travel at all when snow depth is equal to chest height (Stelfox 1976).

Bighorn sheep may be the most spectacular big game animal in central Idaho, but deer and elk are more plentiful, and provided a dietary mainstay to aboriginal populations. Stelfox (1976:14) describes the relationship of sheep, elk, and deer seasonal rounds as follows:

In general, sheep summer above 2100 m. They may pass briefly through the winter range on their way to low-elevation natural licks or for water. During the summer, elk and mule deer move upwards from valley bottoms and may utilize the sheep winter ranges extensively from June to October.

As the September and October snows and cold temperatures freeze and partially cover the alpine forage, about two-thirds of the sheep drift downwards onto the winter grasslands below 2100 m. Of these, 50% winter in the 1800-2100 m. zone..., about 21% winter at the 1050-1350 m. zone..., and 29% winter on small grasslands within the 1350-1800 m. coniferous zone. At this time, elk and deer generally migrate to the valley floor or lower mountain slopes. For all three species, there is a general constriction of range use towards the milder temperatures along the valley bottoms and the windswept grasslands.

Mule deer use the mixed deciduous-coniferous forests extensively year-round and forage predominantly on browse species. They do, however, use a considerable amount of grasses throughout the year....Elk use both deciduous and coniferous forests extensively

year-round for shelter and some winter forage, although they generally forage on grasslands. Sheep remain almost exclusively on grasslands and rocky escarpments throughout the year, where they forage on a variety of grasses, forbs, and low shrubs.

Elk tend to stay within 60 m. of a forest edge when grazing on meadows (Collins, Urness and Austin 1978). In spite of this limitation, they tend to out-compete both deer and mountain sheep, while elk and deer together will out-compete sheep on a given range (Idaho Almanac 1977; Stelfox 1976).

Sheep are relatively easy prey for hunters, because of the regularity of their movements (Buechner 1960; Smith 1954). Short-term regularities include travel to waterholes and salt licks; long-term movements include the seasonal migration of ram and ewe bands between various "home ranges," which occurs on a regular and predictable schedule (Wright and Miller 1976). Analysis of faunal remains of sheep from archaeological sites should reveal much about the past structures of bighorn sheep populations as well as information about human subsistence patterns.

Bison (Bison bison) are not reported for the study area, but they are included here because of their importance in historic Indian diet and culture, and because of the persistent reports of a species of bison (usually cited as B. athabasca) that inhabited wooded or mountainous areas in the west. Bison were not found anywhere in Idaho after the 1840's, but historic journals document their widespread presence during the early 19th century fur trade period (e.g., Coues 1893; Ferris 1940; Haines 1971; Irving 1961; Rich 1950; Spaulding 1956). Bison remains, along with those of mountain sheep (and occasionally mammoth) are present in early Holocene faunal assemblages in Wyoming, Oregon, Washington, and Idaho, and occur in archaeological deposits throughout the prehistoric period (Bedwell and Cressman 1973; Butler 1971b; Gruhn 1961; Mears 1981; Schroedl 1973; Swanson 1972).

Butler (1978c) shows that the distribution of known bison remains parallels that of the sage-grass steppe biome in southern Idaho. He suggests that climatic (hence dietary) stress during the Altithermal resulted in the evolution of the modern form from the earlier, larger species (Butler 1971a, b, c). The observation that up to 71% of the winter diet of a modern bison herd is saltbush (Atriplex sp.) casts doubt on Butler's dietary stress idea (Martin, Zim and Nelson 1951:275), but other causes for the documented changes in form have not been put forward convincingly for Idaho. Most writers agree, at least implicitly, with Hornaday (1887:383), who asserts that "the former range of the bison probably embraced the whole of Idaho."

Early writers, such as Rees (1918) and those quoted in Hornaday (1887) believed there existed a species of bison peculiar to forested mountain areas. At least one modern student of the issue agrees, and compiled a list of traits of the "mountain" or "wood" bison, including small band size, "a tendency to escape into forests or other topography unsuitable for pursuing horsemen," and "finer hair than the plains buffalo" (Christman 1971:44-45). He even postulates a seasonal round for them, stating that they summered in the "mountain meadows, even to the alpine tundra above the tree line" (1971:45). He maps their "core area" as within the Northern and Central Rocky Mountains, extending as far west as the Lemhi Valley, and across the southern edge of the Salmon River Mountains nearly to Boise.

Hornaday knew that bison occur naturally in mountain environments; he lists several high-elevation grasses as major foodstuffs for the Yellowstone herd (1887:429). Fryxell (1926, 1928) reported finding bison remains above 10,000 feet elevation in the mountains of western Wyoming; he suggests that individuals or small herds may have wintered regularly in meadows as high as 8,000 to 9,000 feet (1926:108). Several scholars have suggested that bison moved into the wooded mountain slopes for shelter, and to take advantage of their warmer temperatures in winter, and moved onto the plains for the summer (see, e.g., Moodie and Ray 1976; McHugh 1972, quoted in Franzen 1978). Further support for the existence of bison in high elevation mountain forests comes from the substantial ethnohistoric and ethnographic literature describing the Indian use of snowshoes and snow traps for hunting both bison and mountain sheep (see, e.g., Arthur 1978; Boller 1972; Franzen 1978; Hornaday 1887; Quigg 1978; Reeves 1978; and explorers' journals cited above).

Bison populations may have fluctuated in response to Holocene climatic change (Dillehay 1974; Schroedl 1971, 1973). Data from high mountain localities in central Idaho are not currently available to test these suggestions, but the lands within the River of No Return Wilderness should be ideal localities for collecting such data.

Fish

It remains to discuss the fish resource, as it might have affected or been affected by human populations in the study area. As Hewes (1947:29) noted, fish inhabit a uniquely "linear" aquatic environment, which often cuts across several diverse terrestrial environments. This is the case in central Idaho, where resident fish populations share similar species compositions across wide distances, and where anadromous fish populations actually traverse those distances annually.

Three species of anadromous fish, and one species of lamprey are found in the major streams and rivers of the study area; thirteen species of fish are resident in the rivers, streams, and lakes of the study area (Platts 1972; see Table 3). Four of the resident species, and the lamprey, are considered "abundant;" the rest of the resident species, and all of the anadromous species, are "common" at best (Platts 1972:2).

Of the resident fish species, modern fisheries literature emphasizes Dolly Varden and cutthroat trout (Salvelinus malma and Salmo clarki, respectively), because of their popularity with modern recreationists. Both species were used by Indian populations in Idaho (see Chapter 3). Dolly Varden winter in lower streams throughout the study area, and spawn and rear in major tributaries; they are reported to "school in great numbers" along lower Big Creek in the fall (Platts 1972:27). Cutthroat trout spawn in tributaries of the upper Middle Fork, and winter on the lower Middle Fork and in the main Salmon River. Cutthroat trout use the lower four miles of Chamberlain Creek, and are abundant in Big Creek as well as Pistol, Marble, and Indian Creeks (Platts 1972:23, 27, 32). They occur along with rainbow trout (Salmo gairdneri) in over 60% of the alpine lakes among the Bighorn Crags; Platts (1972:40) found populations in Airplane, Buck, Cathedral, Harbor, Heart, Ship Island, Welcome, and Wilson Lakes. Little additional information is available about the rest of the resident fish populations. Most of the species listed in Table 3 are known to.pa

TABLE 3
FISH SPECIES NATIVE TO THE STUDY AREA

Note: Species reported to have been used by Nez Perce or Shoshoni in **Boldface**

Anadromous	Abundance Rating
Chinook salmon, <u>Oncorhynchus tshawytscha</u>	Medium to low
Sockeye salmon, <u>O. nerka</u>	Low
Steelhead trout, <u>Salmo gairdneri</u>	Medium
Lamprey, <u>Lampetra tridentata</u>	Low
Resident	
Mountain whitefish, <u>Prosopium williamsoni</u>	High
Cutthroat trout, <u>Salmo clarki</u>	High
Rainbow trout, <u>S. gairdneri</u>	High
Dolly Varden, <u>Salvelinus malma</u>	High
Squawfish, <u>Ptychocheilus oregonensis</u>	Medium
Dace, <u>Rhinichthys</u> sp.	Medium
Redside shiner, <u>Richardsonius balteatus</u>	Medium
Mountain sucker, <u>Pantosteus platyrhynchus</u>	Medium
Large-scaled sucker, <u>Catostomus macrocheilus</u>	Medium
Sculpin, <u>Cottus</u> sp.	High
Sturgeon, <u>Acipenser transmontanus</u>	Low
Small-mouthed bass, <u>Picropterus dolomieu</u>	Low
Chiselmouth chub, <u>Acrocheilus alutaceus</u>	Low

Source: Platts 1972

have been used by Idaho Indians, including sturgeon (Acipenser transmontanus), Rocky Mountain whitefish (Prosopium williamsoni), and several species of suckers and minnows (Rostlund 1952; see Chapter 3).

More attention has been paid to anadromous fish, both by fisheries scientists and by anthropologists. The study area supports runs of spring Chinook salmon (Oncorhynchus tshawytscha) in June and July; summer Chinook runs enter the area from late July to early September (Platts 1972). The upper reaches of Chamberlain Creek, especially along the West Fork, are a major salmon spawning area today. Spring Chinook spawn near the headwaters of the Middle Fork, and in Sulphur, Elk, Bear Valley, and Marsh Creeks; both spring and summer Chinook use the upper Big Creek gravels for spawning (Platts 1972:23, 29, 38). Both runs use the high-water periods to come upstream to spawn, and smolts use them to go downstream the following year (Platts 1972:17).

A summer run of steelhead trout (Salmo sp.) arrives in two pulses, the first from June to mid-August, the second from August to October. The steelhead overwinter on the lower and middle Salmon River, and thus are available in the study area from October to June. During the spring, they move upriver to spawn. Steelhead then occur in Chamberlain Creek, Big Creek, and the Middle Fork (Platts 1972: 11-12, 23, 17).

Sockeye salmon (O. nerka) now are rare in central Idaho due to downstream disruptions of their travel route, but they travel through Wild and Recreational portions of the main Salmon River in the study area on the way to their spawning grounds at Redfish Lake (Platts 1972:13). Sockeye are not reported to use other streams within the study area to spawn or rear.

Salmon remains occur in archaeological sites at The Dalles, Oregon, as early as 8,000 years ago (Aikens 1978:169). It is interesting to speculate about the structure of these early fish populations (and the timing of their migrations), in light of modern fisheries data. Platts (1979), for example, found that although first and second order streams comprised 78% of his study area on the South Fork of the Salmon River, fourth and fifth order streams contained 75% of the fish. Although Schalk (1977:218) states that "species diversity varies directly with drainage size," Platts found that more species occurred in fourth order streams, but fifth order streams had 10 times the number of fish as smaller streams (Platts 1979:8). Data from archaeological sites in the study area may help to determine how far back in time these generalizations can be traced.

IMPLICATIONS OF THE NATURAL SETTING FOR PAST HUMAN USES OF THE STUDY AREA

Before turning to a description of the prehistoric and historic patterns of land use in central Idaho and surrounding areas, it is well to summarize those aspects of the natural setting that may be related to such human patterns, or to our ability to discern them. This is especially important because, as Swanson (1970b) notes, modern observers tend to focus on easily visible areas, and either ignore mountainous habitats or treat them as "marginal" to the main sweep of cultural events that occurred elsewhere.

This is certainly the case for the study area. Literate early Euro-American explorers rarely penetrated into the Salmon River Mountains, for until the first gold discoveries in the 1860's the mountains were not known to

contain any "useful" resources. The beaver were elsewhere, and were gone by 1840; the railroads went to the north or south; and the farmers continued on to Oregon. Thus, the study area has been "invisible" for nearly the entire span of Holocene history, even though, as Swanson (1972:24) reminds us, mountainous settings "are the area of greatest variety in plant and animal resources and should, therefore, hold the greatest variety of human occupations." This brief review points out the major potential influences of the natural environment upon the cultural history of the study area.

The land itself, because of its varied topography and sediments, provided level places for habitation both along the main watercourses and at higher elevations away from the rivers. Rivers and streams cut caves and shelters at weak spots in their canyon walls, that also could be used for habitation, or for storage. Lithic resources useful to Indians for stone tools, and mineral resources useful to Euro-Americans and others for gaining wealth, are widely distributed and require relatively little effort to exploit. Free-flowing watercourses provided water for domestic uses, placer mining, and irrigation. These waters supported several runs of anadromous fish, and, together with high-elevation lakes, contained several species of resident fish.

Access to and through the mountains was at least seasonally possible along most of the major streams; cross-country travel also was possible in some of the rolling lands and chains of ridges above the streams. Forested slopes provided fuel, building materials, and understory species important as food for game animals and humans alike. The varied fauna was available year-round, although its abundance and distribution changed seasonally.

The effects of the widespread Holocene climatic changes in western North American on the lands and resources in the study area are unknown. It is reasonable to assume, however, that effects were felt by both the natural and human communities. For example, both the quantity and the season of water flow may have changed in the major rivers and streams; tree-lines may have been depressed; and certain animals (including antelope and bison) may have moved to higher-elevation refuges during the mid-Holocene thermal maximum. Human communities may have responded to these changes by altering their settlement pattern, their seasonal subsistence round, and their technology and social systems.

Local or edaphic factors such as fire, erosion, and deposition probably operated in the past, and may affect our ability to discern the patterns of past human uses. For example, the location, intensity, and abundance of fire changes from year to year in the Northern Rocky Mountains, and the plant and animal communities change accordingly. Data from tree rings cover only the last few hundred years of the Holocene; earlier changes in the nature and distribution of biotic resources caused by fires may have had significant effects on the human use of these resources, but the extent of these effects is not known.

Similarly, erosion may bury a village, obliterate a trail, create or remove a set of rapids; deposition may create a new terrace, fill in an old pithouse, or cover up vital spawning gravels; floods can create a temporary barrier, drown a village or a crop, and destroy fishing paraphernalia. Seasonal changes in the landscape, such as the waxing and waning of snowbanks

can restrict game movements, providing a ready-made game trap for human hunters, or may serve to prevent any human use of an area. And of course, geomorphic processes such as erosion and deposition can remove or mask evidence of former human uses of the land.

CHAPTER THREE

THE CULTURAL ENVIRONMENT

ETHNOGRAPHIC BACKGROUND

Central Idaho is at the interface between the Sahaptin-speaking Nez Perce and the Numic-speaking Shoshoni of pre-reservation times. Sahaptin speakers occupied a great wedge of land from the Cascades of Washington east through the Columbia Plateau to the Rocky Mountains, and included groups known as the Cayuse, Walla Walla, Umatilla, Kutenai, and Sanpoil-Nespelem. Numic speakers occupied the greater part of the desert west from the Oregon Cascades to the Rockies, and south to the Gulf of Mexico; Numic groups include those known as the Paiute, Shoshoni, Bannock, and Comanche.

Early Euro-American explorers mention both Nez Perce and Shoshoni groups in central Idaho and surrounding areas (Figure 5), but no formal ethnographic studies were conducted among these peoples until the 20th century. The following descriptions are based primarily on 20th century accounts, and focus on land and resource uses, material culture (i.e., artifacts and houses), and evidence for inter-cultural contacts. The issues of time depth of these cultural patterns, the nature of ethnic boundaries, and the spread of Numic speakers are addressed at the end of this Chapter.

Sahaptin Speakers of the Plateau

Walker (1978:25-26) gives the most concise, general description of the Plateau cultural pattern characteristic of the Nez Perce. The following features are pertinent here:

- Adaptation to a riverine environment with watercraft and elaborate fishing technology which provided about half of the food base. Remaining food was secured from large game animals and relatively abundant tuberous roots.
- Intensive interaction between local groups based on kinship, trade, and political ties facilitated by either common language, multi-lingualism, or a trade language.
- Band and composite band political organization....
- Bilateral kinship, polygamy, primarily patrilocal residence, local communities rarely larger than 100 individuals, and winter residence in the major river valleys in semisubterranean houses.
- Emphasis on democratic and peaceful interpersonal and intergroup relations.
- Shaman-centered religions...with an emphasis on the individual vision quest for a tutelary spirit.

FIGURE 5

Location of Indian groups as noted by Euro-American explorers, 1805-1850.

Sources: Coues 1893; Fremont 1845; Haines 1955, 1971; Idaho Historical Society 1969b, 1973; Irving 1961; Madsen 1979; Rich 1950; Spaulding 1956; Townsend 1978; Williams 1971.

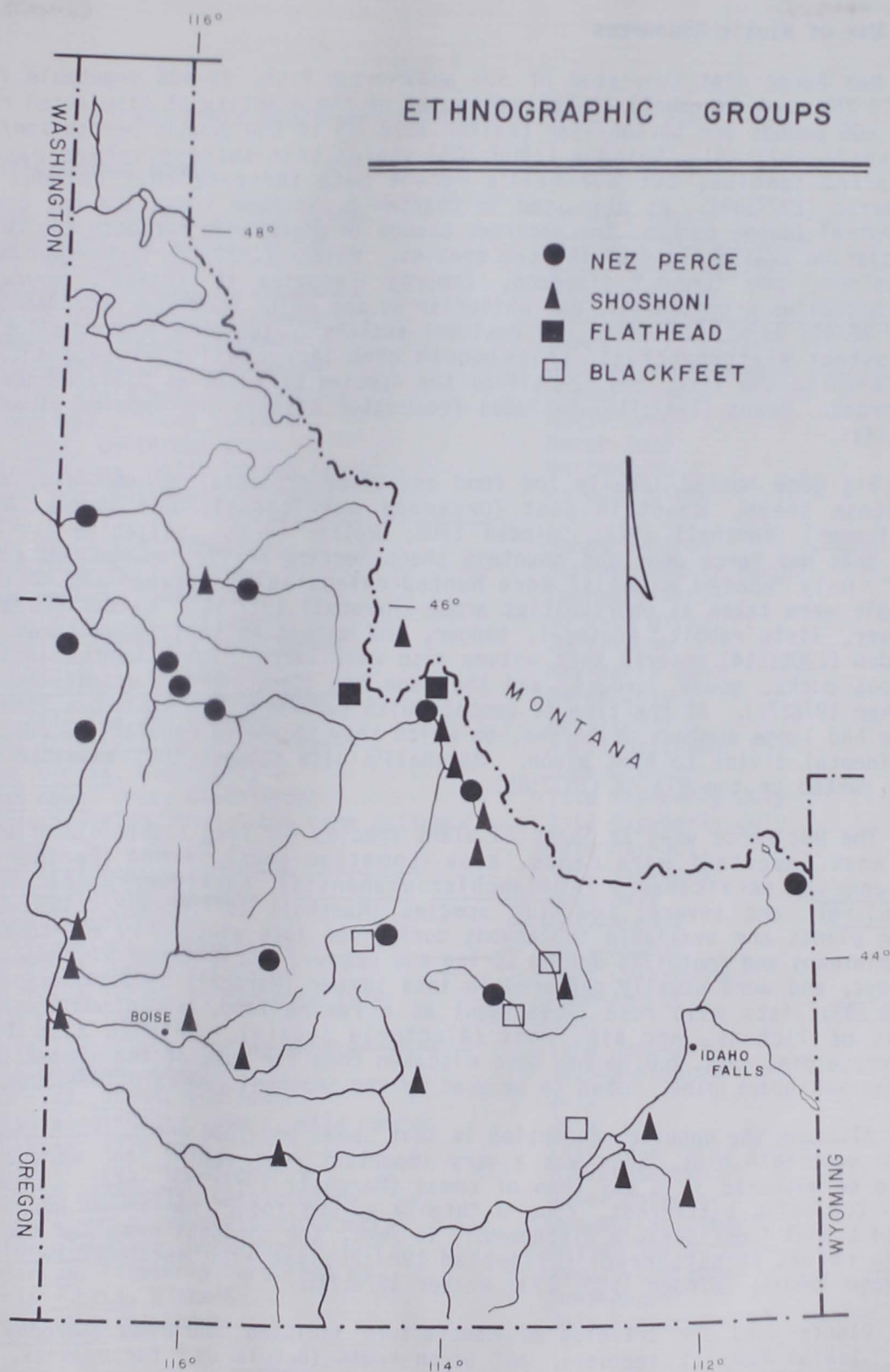


figure 5

Use of Biotic Resources

Nez Perce diet consisted of 50% anadromous fish, 25-40% vegetable food, and 10-25% game (Marshall 1977). Estimates of the quantity of fish eaten range from 400 pounds per person/year (Walker 1978:72) to 560 pounds per person/year (Marshall 1977:44). Spinden (1908:205) states that sockeye salmon was the preferred species, but Marshall's recent data indicate that Chinook was preferred (1977:39). As discussed in Chapter 2, sockeye today are not common in central Idaho; perhaps the apparent change in preference reflects the change in relative availability of the two species. Walker (1978:72) lists four kinds of salmon, one "trout," sturgeon, lamprey (Lampetra tridentata), squawfish (Ptychocheilus oregonensis), and whitefish as the major food species. Marshall (1977:38-42) adds both ocean and resident suckers (Catostomus macrocheilus and Pantosteus platyrhynchus), chiselmouth chub (Acrocheilus alutaceus), and steelhead to the list, and identifies the species of trout as Dolly Varden and cutthroat. Hewes (1947:115) includes freshwater mussels (no species given) on his list.

Big game hunted locally for food and other products included elk, deer, mountain sheep, mountain goat (Oreamnos americanus), and moose (Alces americanus) (Marshall 1977; Spinden 1908; Walker 1978). Liljeblad (1957:27) says that Nez Perce deer and mountain sheep hunting skills "approached a real art." Only "hoofed animals" were hunted extensively; "pawed" and "flying" animals were taken as opportunities arose (Marshall 1977:64). Walker (1978:72), however, lists rabbit, squirrel, badger, and marmot as small game taken, and Spinden (1908:214) asserts that wolves also were taken. Birds hunted included various ducks, geese, grouse, and the sage hen (Centrocercus urophasianus ?) (Walker 1978:72). At the time of contact with Euro-American explorers, the Nez Perce had large numbers of horses, on which they journeyed regularly across the continental divide to hunt bison. Marshall's data suggest that antelope also were hunted on the Plains (1977:65).

The Nez Perce used at least 33 plant species for food (Table 4), of which the most important were camas, kous (Lomatium cous), yampa (Perideridia gairdneri), serviceberry (Amelanchier utahensis), huckleberry (Vaccinium globulare), and several Lomatium species (Marshall 1977:48-59). Twelve of these plants are available in canyons during the late winter; 19 are found on the plateaus and foothills during spring and summer, and 6 occupy high mountain valleys, and were usually gathered in late summer (Marshall 1977:60). Spinden (1908:203) lists wild rose (Rosa spp.) as a famine food, along with various kinds of lichens, and pine moss (Alectoria jubata). Spinden also lists ponderosa pine nuts, but he may have mistaken them for nuts of the limber pine, or the whitebark pine, known to be used by the Shoshoni (Steward 1938:190).

Although the popular conception is that camas provided the bulk of the Nez Perce vegetable diet, kous was a very important root staple, and more of it could be gathered in a day than of camas (Marshall 1977: 52, 57). Liljeblad (1957:28) calls bitterroot, too, a "highly valued food," for which Nez Perce would travel (considerable distances." In fact, the Shoshoni name for the Nez Perce refers to bitterroot (Liljeblad 1957:28; see also Marshall 1977:118; Schwede 1966:1; Spinden 1908: 173; Walker 1978:71).

Plants used for articles of manufacture included beargrass (Xerophyllum sp.), Indian hemp (? species), and birch roots (Betula sp.) for baskets, and tule and cattail (Scirpus sp. and Typha latifolia) for mats (Spinden 1908:191).

TABLE 4

NEZ PERCE FOODSTUFFS WITH MAJOR SEASON OF USE

Scientific/Common names	Season of Use
<u>Onchorhynchus kisutch</u> , silver salmon	no data given
<u>Salmo gairdneri</u> , steelhead trout	Feb-Apr, mid-Sept-Nov
<u>O. nerka</u> , blueback salmon	June, July, August
<u>O. tschawytscha</u> , chinook salmon	June-September
<u>Entosphenus tridentatus</u> , lamprey eel	June, July, August
<u>Catostomus</u> sp., ocean sucker	June, July, August
<u>Prosopium williamsoni</u> , whitefish	January, February
<u>Acrocheilus alutaceus</u> , chiselmouth	January-March
<u>Catostomus</u> spp., local suckers	April-June
<u>Salmo clarki</u> , cutthroat trout	March-June
<u>Salvelinus malma</u> , Dolly Varden trout	March-June
<u>Acipenser transmontanus</u> , sturgeon	no data given
<u>Lomatium dissectum</u> , lomatium	January-March
<u>L. salmoniflorum</u> , lomatium	February-early March
<u>Lomatium canbyi</u> , lomatium	February-April
<u>Fritillaria pudica</u> , yellowbell	no data given
<u>Balsamorhiza sagittata</u> , balsamroot	April-June
<u>Celtis douglasii</u> , hackberry	May-early June
<u>Amelanchier alnifolia</u> , serviceberry	March-July
<u>Ribes aureum</u> , golden currant	April-July
<u>Brodiaea douglasii</u> , wild hyacinth	April-September (?)
<u>Sambucus cerula</u> , elderberry	June-October
<u>Lomatium cous</u> , cous, biscuitroot	late May-early July
<u>Lomatium</u> sp., also "cous," but rare delicacy	late May-early July
<u>Allium</u> spp., wild onion	late May-July
<u>Lomatium triternatum</u> , lomatium	late May-June
<u>Frasera fastigiata</u> , fraseria	June-July
<u>Ribes</u> spp., gooseberry	July-August
<u>Prunus virginiana</u> , chokecherry	July-August
<u>Cirsium scariosum</u> , elk thistle	late July-August
<u>Calochortus ewiycarpus</u> , Mariposa lily	June-August
<u>Lomatium</u> sp., lomatium	June
<u>Claytonia lanceolata</u> , spring beauty	late June-July
<u>Camassia quamash</u> , camas	July-September
<u>Balsamorhiza incana</u> , sunflower	July
<u>Perideridia gairdneri</u> , yampa, wild carrot	July
<u>Rosa nutkana</u> , wild rose	late July-early August
<u>Rubus parviflorus</u> , thimbleberry	August-September
<u>Amelanchier utahensis</u> , serviceberry	June-September
<u>Sambucus racemosa</u> , mountain elderberry	August-September
<u>Vaccinium globulare</u> , huckleberry	August-September
<u>V. scoparium</u> , fireberry, grouseberry	August-September
<u>Alectoria jubata</u> , pinemoss	June-August
<u>Crataegus</u> spp., hawthorn	July-September (?)

Source:

Marshall 1977; preferred species given in **boldface**

Vine maple (Acer circinatum) and hackberry (Celtis douglasii) were used to make snowshoes; serviceberry and syringa were used for arrow shafts (Spinden 1908:213; Dahlstrom 1972:10). Driftwood provided materials for dugout canoes, and for fuel and building materials (Spinden 1908:223).

Settlement and Subsistence Patterns

A general picture of the Nez Perce seasonal subsistence round is revealed by names of calendar periods. As reported by Spinden (1908:237), May is the "month of kouse bread;" June, the "month of first run of salmon;" July, the month of "eels" or of "blue-back salmon;" September is the "month of the fall deer hunt." Schwede (1970:130) summarizes the annual cycle on the basis of foodstuffs: fish were available year-round throughout the Nez Perce area, depending on the species. Roots were available from late spring to early fall in the uplands; and hunting was possible during the winter in the lowlands adjacent to the major streams.

An idea of the transportation network needed by the Nez Perce in order to engage in subsistence activities can be gathered by looking at where they were each season. Walker (1978) describes that cycle as follows. In spring, groups of Nez Perce travelled into the river valleys to fish, and gathered early roots at lower elevations. In midsummer, they left the valleys for the highlands, to gather roots, to fish, and to hunt. In late summer, a contingent left for lands east of the Rocky Mountains to hunt bison. These journeys, often undertaken by an entire community, may account for the vacant villages noted in October, 1805, by Lewis and Clark (Coues 1893:627). During the fall, some hunting and salmon fishing occurred by those who stayed behind; by winter, all those who were not still on the Plains retired to a main village along a river.

Marshall's recent data suggest that midsummer was the time of the most intense hunting activity. Some of his informants stated that the meat "didn't taste right" if obtained during other seasons, although the game animals were accessible on the lower slopes from late fall to early spring (Marshall 1977:70). Table 4 presents a more detailed picture of the seasonal pattern of food-gathering by the Nez Perce.

Nez Perce settlement pattern has been studied by numerous scholars, usually in conjunction with studies of subsistence. Schwede (1966, 1970) added considerable detail to Spinden's early statement (1908:173) that "permanent settlements were situated only along the rivers," and documented the relationship of various kinds of settlements to elevation, position on streams and rivers, and location of subsistence resources. Spinden (1908:271) identified only 60 villages; Schwede (1966:8) identified 295 settlements, of which 132 were "villages," 137 were "camps," and the rest could not be classified. Two "villages" are mapped as within the study area of this report (Figure 6).

Schwede's list was believed to include 90% of the known villages, and 75% of the known camps. Most of the villages occurred below 2,500 feet elevation; all were below 4,000 feet (Schwede 1970:131). By contrast, over half of the camps for which elevation information was available occurred between 2,500 and 6,000 feet elevation.

Spinden had noted (1908:175) that villages were located "upon the alluvial fans...at the mouths of lateral streams." Of those settlements with geographical data available, 71% were within 1 mile of a tributary mouth, and 82% of the "villages" were situated on the larger tributaries. By contrast, only 49% of the "camps" were so situated, and Schwede notes that camps are "more widely dispersed throughout the spectrum of different sized streams" than are villages (1970:132).

Schwede also found that settlements are not random with respect to the location of food resources. For example, 87% of the "villages" and 82% of the "camps" are located in areas with an ethnographic record of fish, game, or root resource use (Schwede 1970:133). Put another way, over 80% of the settlements occurred on only 9% of the land.

Marshall (1977:134) describes the relationship between settlements and their land and resource base as follows:

Villages were located in zones where people could survive most easily during the least resource-rich time of year and where access to spring resources was easiest. Thus they were in the canyon bottoms....Locations...within the canyons were determined by a calculus of (1) floodplain activity, and (2) the occurrence of springs, and (3) the occurrence of a number of flat ridge tops nearby.

Villages were situated on the larger stream, upstream of the tributary mouth, because the larger stream tended to form aggradational bars which were less frequently flooded yet caught driftwood easily. Tributary streams tended to have resident (year-round) fish resources; nearby ridges often contained *Lomatium* species which provided the earliest spring vegetable foods (Marshall 1977). Walker (1967:26) states that many villages were "in direct association" with permanent fishing paraphernalia, such as weirs, traps, and dipping platforms. He points out that for a dipping platform to work properly with the long-handled Nez Perce dip net, it must be located over an eddy in the river, although traps and weirs often were placed a short way up the tributary (Walker 1967:73).

Upland hunting camps often were in rugged terrain; bulky items such as tipi poles were cached nearby rather than transported back and forth from the main village (Marshall 1977:69). Such camps were used from year to year by the same people. A typical "hunting itinerary" is given in Marshall's text (1977:71); the hunters would

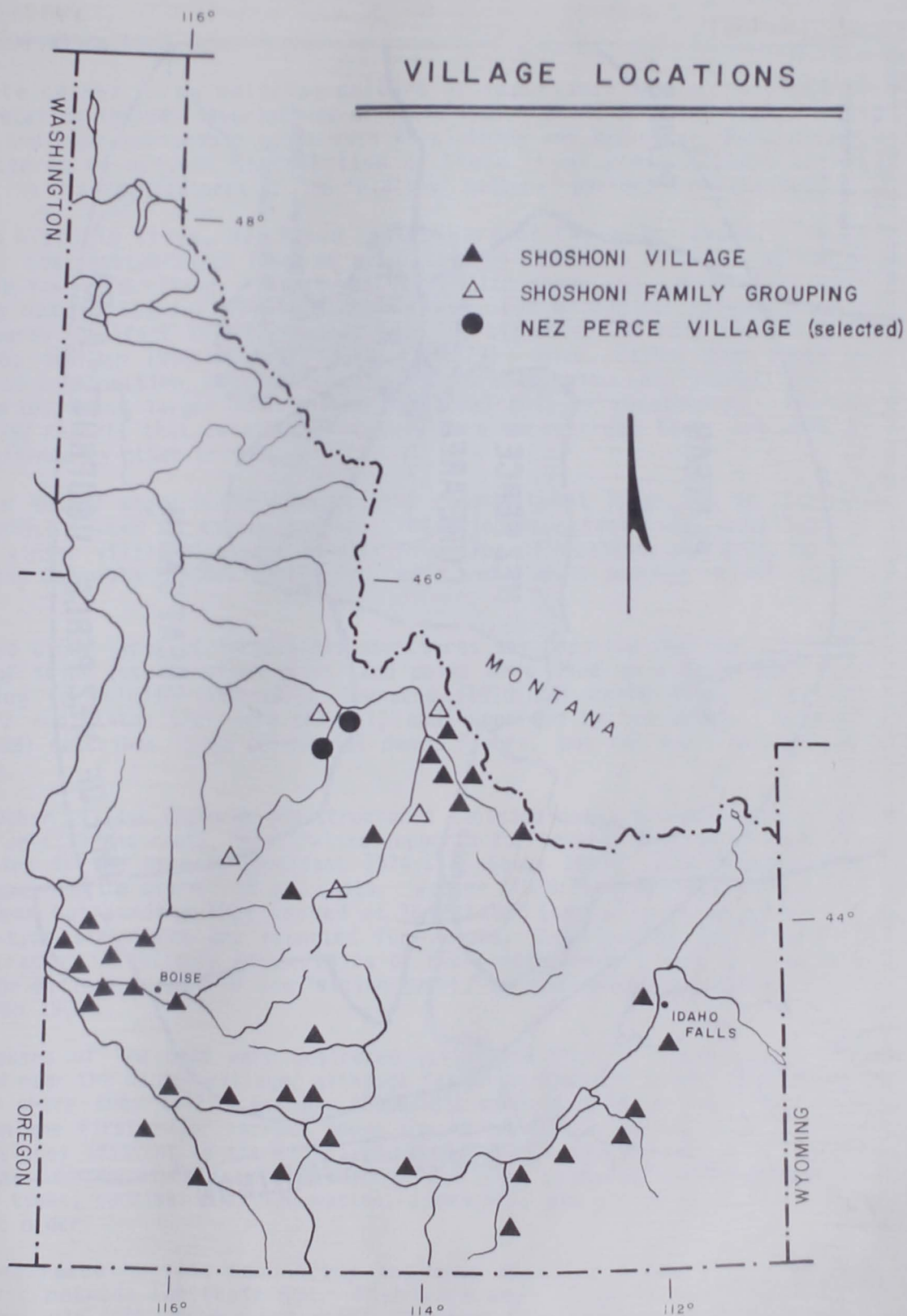
enter the mountains following a major ridge system, then cross to another system to come back out. Camps are about 6 to 10 miles apart. Each camp heads a drainage basin which is hunted for 2 to 8 days. Hunters moved on quickly if hunting was poor. If it was good, then roughly 8 days were required to prepare the game for storage and packing it (home).

Spinden (1908:172) noted that the "area actually inhabited was only a small part of the territory under Nez Perce control." Walker (1967:1) estimates that the area "customarily exploited" covered about 270,000 square miles, and that the "home territory" was only about 10% of this area (Figure 7). This topic is taken up again later in this chapter.

FIGURE 6

Location of Shoshone and selected Nez Perce villages.

Sources: Murphy and Murphy 1960; Schwede 1966; Steward 1938.



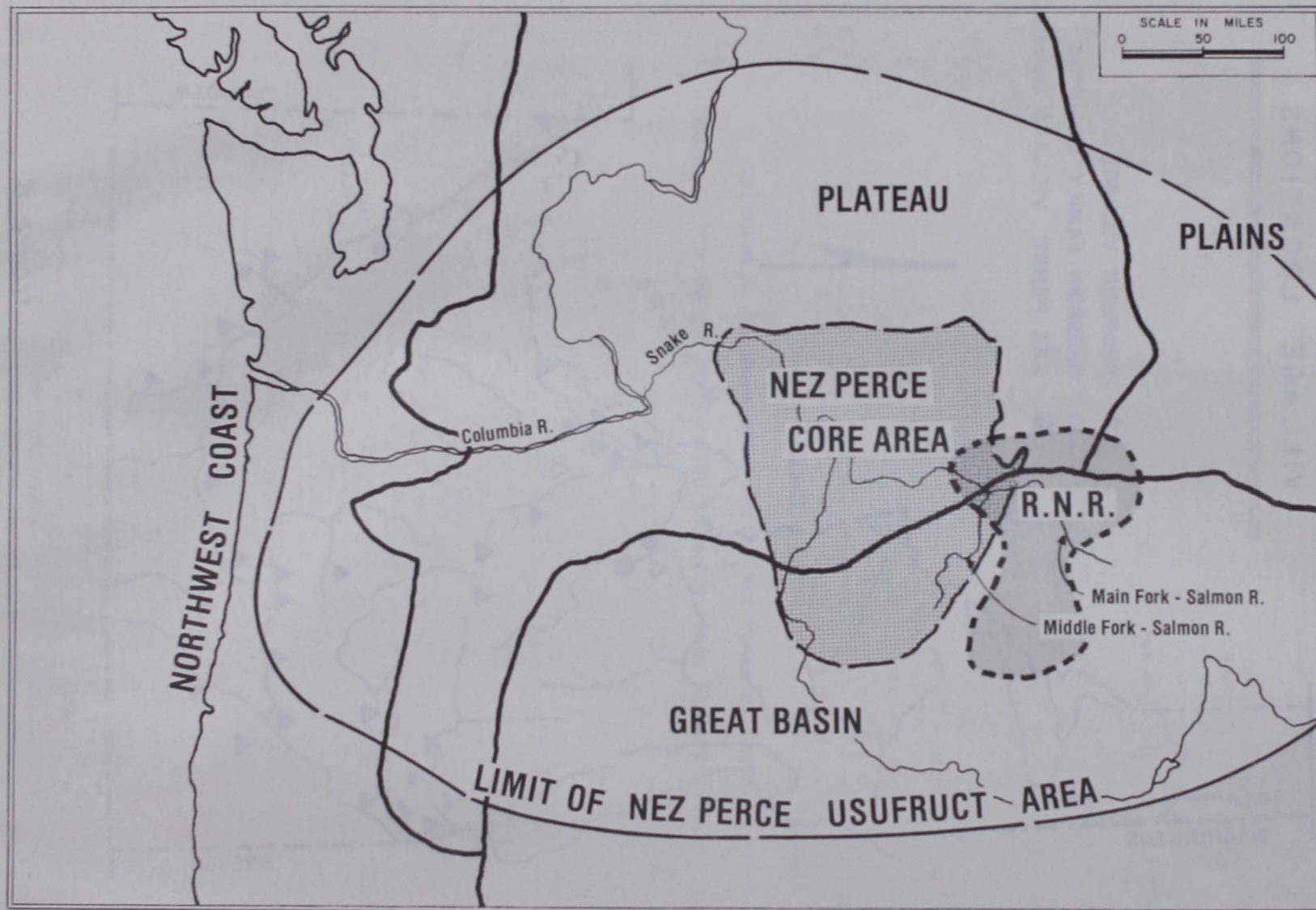


FIGURE 7

Nez Perce "core area" and "usufruct" area.

Source: Walker 1967.

Material Culture

Data on Nez Perce material culture of importance for archaeological interpretation include descriptions of house types, stone and bone tools, trade items, and some perishable goods such as clothing and basketry. Furthermore, the patterns of use and distribution of these items are pertinent to the attempt to discern features of the "Plateau" cultural pattern in prehistory.

In historic times, Nez Perce houses were of two major types. One, a circular semi-subterranean lodge of poles covered with mats or skins, served as a single-family dwelling. Structures of similar shape and construction were used as dormitories for single men or women, for menstrual lodges, or for sweathouses (Chalfant 1974:37; Haines 1955:10; Liljeblad 1957:30, 35; Marshall 1977:136; Spinden 1908:195-198; Walker 1978:79). Size, rather than shape or method of construction, distinguished among the uses, with family dwellings and dormitories being larger than either menstrual huts or sweathouses. Spinden (1908:198) reports that sweathouses always were on a stream bank, but this is not confirmed by other writers.

The second major house type was the communal mat lodge, up to 150 feet long, which housed up to 100 people. These lodges occasionally comprised an entire winter village (Spinden 1908). This type of dwelling was observed all along the Columbia Plateau portion of Lewis and Clark's journey in 1805 (Coues 1893).

Two other types of large-scale structures are reported for the Nez Perce. Tipis of skins (usually bison skins) and poles were used as summer dwellings, according to Spinden (1908:197); Townsend (1978:115) calls them "travelling houses", and states they were conical, and supported by ten poles. Marshall (1977:136) describes large ceremonial dance floors, but not every village had its own.

Other village features and structures included camas baking ovens, drying racks for fish and roots, "stilt"-like supports for houses, and remains of dams and weirs in the streams (Chalfant 1974:137; Coues 1893). Underground cache pits were used to store fish and roots. Walker (1978:79) describes stream-side pits near hot springs that served as "bathtubs" (see also Coues 1893). No corral-type structures are reported for horses, but Shawley (1977) reports "race tracks" in suitable areas. Piles of rocks occasionally were created away from the village as part of the "vision quest," or search for a tutelary spirit (Spinden 1908).

Houses of the dead were destroyed (Liljeblad 1957:32). Cemeteries were located near the winter village, although fallen hunters or warriors often were buried where they fell. Spinden (1908:181) reports that village cemeteries were on the first major terrace above the river, or in pits hollowed out of talus slopes adjacent to the river. Osborne (1957) suggests that talus burials are late introductions from the Plains, and were preceded by a sequence of burial types, consisting of inhumation, cremation, and use of cists or vaults, in that order.

Nez Perce hunting technology included specific kinds of tools, and specific methods for their use. Fish were most often taken with spears, harpoons, dip nets, traps, and weirs; sturgeon usually were taken with a bi-pointed bone gorge, baited with lamprey, although occasionally a stone gorge

was used (hewes 1947:115; Wlker 1978:73). Large game were hunted by stalking, encirclement, and the use of traps and deadfalls. Winter hunts were conducted on snowshoes. Decoys could be used for large game, including both deer and mountain sheep (Chalfant 1974; Spinden 1908; Walker 1967, 1978). Spinden (1908:214) reports communal "drives" of deer and rabbits, as does Liljeblad (1957:27). Water birds were taken with snares (Marshall 1977:65).

Spinden describes the contemporaneous use of several different styles of flaked stone tools (1908:185):

It is difficult to discriminate between spearheads, knives, and arrowheads; the working rule of classification depends mainly on the size. Any point more than an inch and a quarter in length may safely be called a spearpoint if it is barbed; if not barbed the chances are that points exceeding three inches long were intended for use as knives, and those under that size for spearheads.

He illustrates a variety of styles in simultaneous use (see Figure 8), and suggests that the differences in basal shapes may reflect differences in hafting techniques. Obsidian was a preferred lithic material, and, according to Spinden, was obtained from sources in Yellowstone National Park (in Shoshoni "territory") and near John Day, Oregon (in Paiute "territory"). Chalfant (1974:119) reports that "black flint" (obsidian? ignimbrite?) was obtained near Weiser, Idaho, on a "small stream emptying into Snake River from the east."

Wooden and basket hopper mortars were usually used; stone mortars were rare, but both pestles and mauls were of stone. Spinden (1908:185) states that pestles, in particular, were "valuable family property, and they were handed down for generations." Pipes were made of stone, as were sinkers for fish nets (Spinden 1908:188; Walker 1978:35).

Bone, horn, and antler were used for various primary and secondary tools. Antler wedges, and flakers for stone working, are reported by Spinden, as are bone awls, whistles, gorges, and fleshers (1908:189, 215). Needles, although not reported ethnographically, must have been used to make the tailored skin clothing, which was fashioned on the Plains model (Gunther 1950:178). Mountain sheep horn was used to make the famous Nez Perce composite bow, and for spoons and bowls (Gunther 1950:177; Spinden 1908:210).

Basketry materials have been discussed under **Use of Biotic Materials**, above. Both coiled and twined baskets were made, and used as hats, cooking utensils, carrying and storage devices, and wallets (Gunther 1950:177; Spinden 1908:191; Walker 1978:73). Antelope hide was used for clothing, buffalo hides for tipi covers, and salmon skins as containers for processed salmon (Chalfant 1974:127; Gunther 1950:177; Spinden 1908:196).

The Nez Perce had dogs, which they used with a travois for transporting bulky loads, and for hunting (Walker 1978:72). The Nez Perce were famous horse raisers in historic times; most ethnographic sources assert that the acquisition of the horse in the mid-18th century (Haines 1938a b) had a profound effect on the Nez Perce economy, including their seasonal round. As Walker (1978) points out, the horse became an important status symbol, and improved the mobility of both individuals and groups. Women increased their participation in the annual journey to the Plains, and by so doing altered the nature of the goods traded there (Gunther 1950:178). With a horse, a person

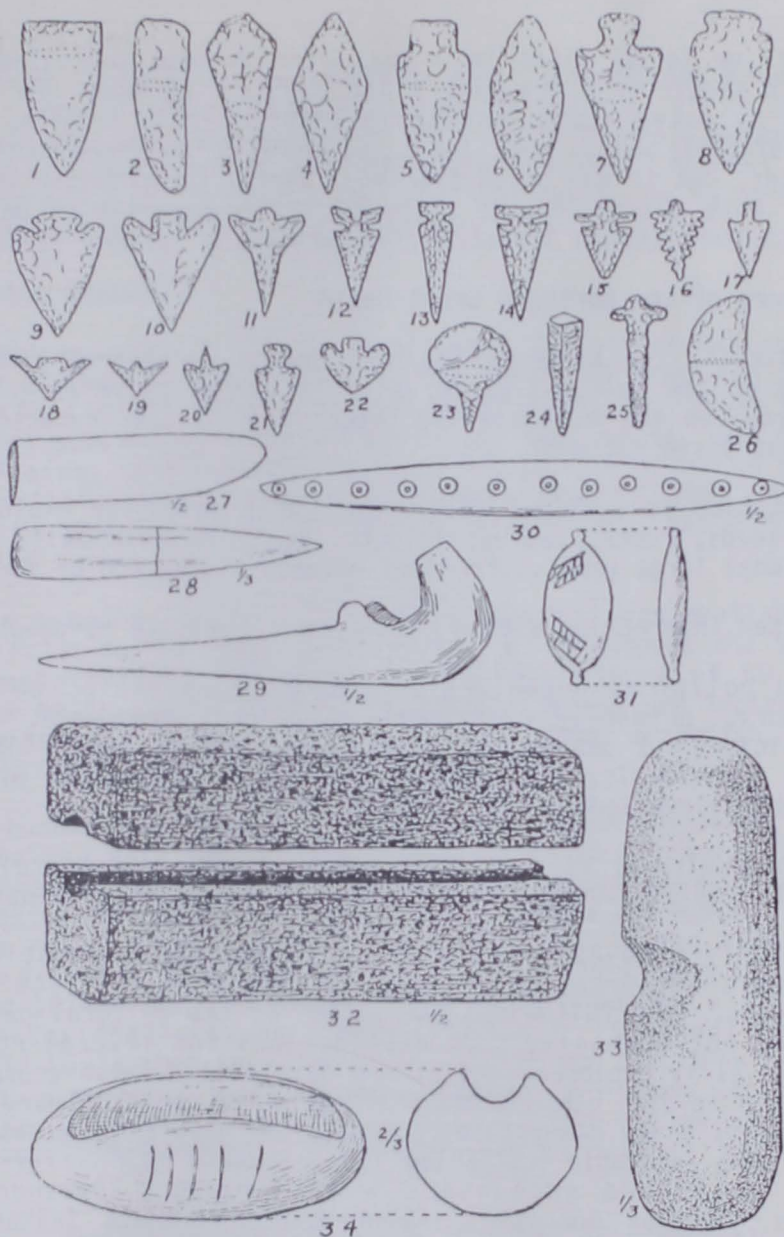


FIGURE 8

Projectile point types used by historic Nez Perce.

Source: Spinden 1908.

could travel up to 60 miles in a day, even through mountainous country. By using a pack saddle or a travois, a person could increase the amount of goods that could be taken along (Anastasio 1972:128-129; Shawley 1977:101). As Chalfant (1974:139) points out, the horse could be an impediment for hunting in the mountains, but it was often extremely useful for transportation through the mountains. This characteristic of horses as transportation devices was noted by Lewis and Clark (Coues 1893:523), and echoed by Spinden (1908:214).

Numic Speakers of the Northern Great Basin

In contrast, the Northern Shoshoni groups of central and southern Idaho shared many of the cultural patterns of the Great Basin area. Again, Walker (1978:26) provides the most concise description of the characteristic features of this Great Basin pattern:

- Adaptation to a desert environment with intensive exploitation of nuts, seeds, roots, cactus, insects, small game animals, birds, and occasional large game....frequent movement in search of food.

- Limited interaction with groups except immediate neighbors.

- Band political organization, bilateral kinship, polygyny and polyandry, primarily patrilocal or bilocal residence, occasional infanticide and senilicide, local communities rarely larger than thirty individuals, and residence near water resources in oases and at higher elevations.

Peaceful intercultural relationships, and shaman-centered religions beliefs, including the vision quest, also were characteristic of this pattern.

Most early Euro-American explorers, and some recent scholars, have described Northern Great Basin Numic speakers as distinctive "tribal" or "ethnic" groups. The following description of the cultural patterns of these peoples does not emphasize such distinctions for several reasons. First, whatever the early explorers and others have called these groups, the Indians themselves called each other names that reflected their primary foodstuffs; to a certain extent these names also reflected the geographic areas in which these foodstuffs were available (Liljeblad 1957; Steward 1938). For example, Euro-Americans described encounters with "snakes," "Shoshoni," "Bannock," "Sheepeaters," "Broken Moccasins," "Bann-at-tee," "Banack Snakes," "les dignes de pitie," and "tukuarika," among others; the native peoples, however, called themselves "agaidika" (salmon eaters), "tukudeka" (mountain sheep eaters), "yahanduka" (groundhog eaters), and "tubaduka" (pine nut eaters), depending on where they were at the time (Liljeblad 1957:56; Lowie 1909:206; Steward: passim).

Second, similarity of cultural practices and patterns throughout central Idaho Numic-speaking groups in historic times suggests that such similarities also may exist during prehistoric times (see, e.g., Liljeblad 1959, 1972). Thus, post-reservation "ethnic" groupings may have little relevance to interpreting archaeological remains in the study area. Finally, it is likely that some of the finer distinctions among "ethnic" groups are creations of both early and modern (non-Indian) observers' imaginations. For example, early Indian agents routinely called those Indians with horses "Bannocks," and those without, "Shoshoni" (Liljeblad 1957:61; compare with Liljeblad 1959, 1972, and

the discussion of **Indians of the Salmon River Mountains**, below). Most revealing of the modern Indian viewpoint is one of Hultkrantz's informants, who insisted that "we are the same people--there is no difference between us" when pressed to discuss ethnic divisions within the Northern Shoshoni (Hultkrantz 1961:23). Accordingly, the following descriptions apply to "generic" Northern Shoshoni, unless specifically noted otherwise.

Use of Biotic Resources

The natural resources of the Numic-speaking Indians of central Idaho are more like those of their Sahaptin neighbors to the north than like those of the arid Great Basin farther south (Liljeblad 1957:13; see Table 1). Hence, Northern Shoshoni subsistence also was based on fish, roots, and annual bison hunts on the Plains. Ethnographic and ethnohistoric research by Dominick (1964), Franzen (1978), Hultkrantz (1957, 1961), Lowie (1909, 1924), Madsen (1979, 1980), Murphy and Murphy (1960), Rusco (1976), and Steward (1938) support Liljeblad's view.

Salmon was a major staple food in areas where it was available, such as below Shoshone Falls on the Snake River Plain, and throughout the Salmon River drainage. Hewes (1947:227) gives a consumption figure of 50 pounds per person/year; the main salmon fishing season was in August and September. Other fish taken were sturgeon, chub, suckers, minnows, trout, whitefish, and lamprey (Hewes 1947:117; Lowie 1909:185; Steward 1938:190).

Big game hunted for food included deer, elk, mountain sheep, moose, and antelope. Antelope were hunted on horseback, and in winter snows (Irving 1961:353-354; Steward 1938:190). Bison were hunted by horse-mounted groups east of the Rockies (Liljeblad 1957; Lowie 1909; Murphy and Murphy 1960; Walker 1967), and from August to May in the Bear, Lemhi, and Salmon River valleys in historic times (Franzen 1978; Haines 1971; Irving 1961; Rich 1950; Spaulding 1956; Townsend 1978). Boys hunted rabbits and groundhogs with their dogs; wolves were occasionally taken (Lowie 1909:185). Shoshoni on the Lemhi Reservation told Lowie that they "never ate dogs," and that they "abstain from the meat of white mountain sheep" (Lowie 1909:232). Birding was an important activity (Walker 1978:90), but magpies, crows, and eagles were not taken because they provided feathers, and hence were considered "friends" (Lowie 1909:232).

Camas was a dietary staple; Shoshoni from all over central and southern Idaho are reported to have converged at Big Camas Prairie, south of the Salmon River Mountains, to gather camas in season (Franzen 1978; Liljeblad 1957; Steward 1938). Other plant foods eaten included bitterroot, yampa, wild rose, chokecherry, and serviceberry (see Table 1). The nuts of the white pine were gathered in the Lemhi Mountains (Steward 1938:190).

Settlement and Subsistence Patterns

The settlement pattern of the Northern Shoshoni is described as being closely tied to the seasonal subsistence round, but the specific locations of various communities at different times of the year are difficult to discern from the literature. Perhaps, as Franzen (1978:17-19) suggests, this is because the variety of simultaneously-exploitable food resources resulted in extremely complex decision-making and scheduling for subsistence activities. Early Euro-American explorers found Shoshoni almost everywhere they went, at

all times of the year (see Figure 5). After 1840, salmon, camas, and bison were only available at different places, and all during the same season. Sometimes a community of Shoshoni would travel as a group to exploit these resources; sometimes a single family would travel alone or with a few neighboring families (Franzen 1978).

Despite the fame of Big Camas Prairie as a source of vegetable food, recent scholars have suggested that it was visited primarily because of its importance as a trading center, and hence for social rather than purely subsistence reasons (e.g., Statham 1975). With horse transportation, it is possible to travel to all of the necessary subsistence resources in a 1000-mile "annual sweep;" without horses, it is necessary to decide which resources will be exploited in which year, and by which community (Liljeblad 1957). For example, some Shoshoni from the Lemhi Valley would hunt bison in the summer rather than in the fall, then return and overwinter at Big Camas Prairie (Liljeblad 1957:106).

Winter villages were small, averaging two or three lodges (Murphy and Murphy 1960:322). The largest winter village reported by Steward (1938:188) consisted of 20 families. Even so, winter villages were the largest single community gatherings; spring-summer camas-gathering areas supported multi-community (and in some cases, multi-lingual) groups. Shoshoni winter villages, like those of the Nez Perce, seem to be associated with good fishing locations. Water, wood for fuel and building material, access to stored foods, and mild winter temperatures were major factors in selecting winter village locations. Several winter villages are reported to have existed along the Lemhi River and the upper Salmon River (Steward 1938; see Figure 6). Steward (1938:188-189) also names and maps five "concentrations" of families in the study area covered by this report; three are on the main Salmon River, two are on the Middle Fork (Figure 6).

Material Culture

Shoshoni house types included skin tipis, 7 to 8 feet high, built on a four pole frame (Lowie 1924:221). According to Lowie, the entrance always faced east, but other reports do not mention this. Sagebrush (or grass) mats and/or thatch were used to cover the summer dwelling; at least one early observer described lodges made simply by bending over the tops of suitably-located live willows (Townsend 1978:137). Some Lemhi informants stated that grass or sage conical houses were used year-round before they adopted the skin tipi of the Plains (Lowie 1909:183). Lewis and Clark describe both "leathern lodges" and "shelters of willow bushes" in the same village (Coues 1893:521). Menstrual huts were small, thatched versions of the dwellings.

According to Steward (1938:238), the Shoshoni lacked sweathouses, but Lowie describes them for both the Lemhi and the Wind River reservation Shoshoni (1909:183; 1924:308). Lowie asserts that "there is absolutely no evidence that the Shoshone ever constructed semi-subterranean earth lodges", but did report that early Euro-American travellers saw Shoshoni groups living in caves (Lowie 1909:184). Alexander Ross claims he was told in 1855 that some Indians "always" built their "winter houses...among the rocks" (Spaulding 1956:278). Lowie describes a structure called a "hogu-ganⁱ," or "summer shade," which consisted of a rectangle about 12 by 10 feet, about 6 feet high, with a cooking hearth in the center (Lowie 1909:183).

Houses of the dead were destroyed (Lowie 1909:216). Shoshoni graves were close to the village; interments were extended, but sometimes cremation was practiced (Walker 1978:150).

Shoshoni subsistence-related technology included communal fish weirs and traps, as well as fish spears, harpoons, dip nets, and seines; poison apparently was used on some species of resident fish (Hewes 1947:118; Lowie 1909:185; Murphy and Murphy 1960:319; Steward 1938:190). Townsend (1978:155) observed that most fishing was done in "slues, creeks &c," not in the deep, wide, main rivers.

Large game was taken by stalking (often with dogs), and by the use of blinds, decoys, deadfalls, and pits (Lowie 1909:185; Walker 1978:91). Poisoned arrows are reported by Lowie (1909:185), who also states that wolves were snared, and sage hens were taken with a noose. Communal rabbit drives were undertaken, but Walker (1978:90) reports that deer were too dispersed to be hunted communally. The Shoshoni probably hunted deer on snowshoes in the winter, as Lewis and Clark reported that the Nez Perce did (Coues 1893:623). Lowie's Lemhi informants "never heard" of killing bison by driving them over a cliff, although one of Liljeblad's later informants describes just such a method (quoted in Butler 1971a:10-11).

Suitable cryptocrystalline lithic materials apparently were heat-treated to improve their flaking qualities (Lowie 1924:225). According to Liljeblad (1957:88), Shoshoni in eastern Idaho preferred obsidian they could get from Indians around Weiser to the "inferior" variety from Yellowstone. The ultimate source of this preferred obsidian was said to be Glass Buttes, Oregon; Paiutes traded it to both the Nez Perce and the Shoshoni at a kind of "rendezvous" in the Boise/Weiser area (Liljeblad 1972:19).

Shoshoni stone-working technology is described by Lowie (1909:173-174), who follows closely the observations of Lewis and Clark (Coues 1893:563). For instance, knives were made by

breaking pieces of obsidian, which was common in their country, and selecting suitable, sharp-edged fragments, often of irregular shape. A piece an inch or two long was not rejected so long as it would cut. The edge was renewed by means of an elk or deer horn. In fashioning arrow points, similar pieces of obsidian were broken off, laid upon a hard stone, and struck with another stone or finished with a deer or elk horn.

On the basis of explorers' accounts, Lowie suggests that thicker arrow points were used for hunting, and thinner points for war. The points he describes measured about 3/4 by 1/2 inch wide (Lowie 1909:174).

In historic times, clothing was tailored, on the Plains model. One piece, unsoled moccasins were made from deer, elk, or buffalo hide; salmon vertebrae or ocean shells (obtained in trade with coastal groups) were strung and used as necklaces (Lowie 1909:179, 181). Pottery was not being made at the time of the 20th century ethnographic studies, but its existence and use in earlier times was acknowledged by Shoshoni informants (Lowie 1909:177). Lewis and Clark describe using a "sherd" in a pipe to keep the tobacco from falling through (Coues 1893: 492).

Composite bows were made of mountain sheep horn; fire drills were of sage and serviceberry (Dominick 1964:151; Lowie 1909:189). Antler wedges were used to split wood; awls, salmon gigs, and gaming pieces were of bone, as were scrapers and fleshing tools for hide working (Lowie 1909:174-175). Lowie reports that the Lemhi Shoshoni had no axes, but depended on windfalls (and driftwood?) for wood supplies. Quartzite was obtained locally, and large flakes of it were used as scrapers.

It should be clear that, except for the average size of winter village, and some details of house type and burial style, the Shoshoni culture patterns just described are indeed very similar to those of their Sahaptin-speaking neighbors to the north. These Shoshoni seem to have used the mountains and rivers, and their big game and fish resources as much or more than they used the "desert" resources typical of other Numic-speaking groups. A brief examination of the conflicting viewpoints regarding the origins, character, and cultural patterns of the Indians of the Salmon River Mountains will highlight the difficulties of applying the "Great Basin" pattern to the aboriginal inhabitants of the study area.

Indians of the Salmon River Mountains

The "tukudeka," or "mountain sheep eaters," are alleged to have inhabited the mountainous terrain of central Idaho. This "tribe" or "ethnic group" has been the subject of much speculation since the publication of Lewis and Clark's provocative description of the "Broken Moccasin" Indians (Coues 1893:523) and Rees' description of the "tukuarika" as "not far removed from the lower animals" (1918:116). Some authors assert that they were a distinctive ethnic group, with distinctive settlement and subsistence patterns, and distinctive technologies. Hoebel (1938:410) is among this group; Liljeblad's early manuscript study (1957) and Dominick's brief paper (1964) seem to contain the major arguments for the idea that there existed a separate, more-or-less permanent group of Numic-speaking Indians in the mountains, to which the label "tukudeka" could be applied.

On the other hand, some authors assert that the "tukudeka" simply were seasonal manifestations of other Shoshoni groups (e.g., Steward 1938:186). In Liljeblad's published works, he states that the "tukudeka" were virtually indistinguishable from other Shoshoni groups (Liljeblad 1959, 1972). To further confuse the issue, two authors would could reasonably be called "eye witnesses" to the last of the "tukudeka" have views that differ from each other's, as well as from those just cited. Rees (1918:116), for example, claims that the "tukuarika" were a group of Shoshoni that were "driven and held in the mountain fastnesses by the Blackfeet Indians." In contrast, Brown (1926:5) claims that the "Sheepeaters" he helped to capture in 1879 were "a small band of renegade Bannocks, Shoshones, and Weisers," called "sheepeaters" because of their principal foodstuff.

Perhaps significantly, the concerted attempts to determine the original "territories" of the Indians in the Salmon River Mountains that prompted the Indian Claims Commission studies in the 1950's made no mention of the "tukudeka" as a separate ethnic group (e.g., Chalfant 1974; Murphy and Murphy 1960). Rather, both the Nez Perce and the Shoshoni were treated as somewhat unitary, homogeneous "tribal" entities; the various "boundaries" between these two groups are shown in Figure 9.

The issue of borders or boundaries is significant here. Early observers, when they mentioned boundaries at all, specified that "the divide" between the Salmon and the Snake Rivers divided the Nez Perce from the Shoshone (e.g., Curtis 1911, quoted in Chalfant 1974:76). Most recent ethnographers of the Shoshoni agree that they controlled the land now contained in the River of No Return Wilderness south of the Salmon River (e.g., Liljeblad 1957; Murphy and Murphy 1960; Steward 1938). Steward mapped a Shoshoni settlement, "bohodai," at the mouth of the Middle Fork on the south bank of the main Salmon River (1938:136).

The Nez Perce, on the other hand, were considered to control the lower Salmon River, including the South Fork but excluding the Middle Fork (Chalfant 1974; Figure 9). Ray (1939) maps the Nez Perce as extending south of the main Salmon River, and east almost to North Fork; Hoebel (1938) maps "salmon eaters" (Nez Perce? Shoshoni?) as north of the main Salmon River. Walker (1967, 1978) considers that the Nez Perce "core area" was centered on Lewiston, Idaho, and the Clearwater drainage, but that their "usufruct" area extended throughout the Columbia Plateau, and included both the northern Great Basin and the northwestern Plains (Figure 7).

Liljeblad (1957:26) highlights one aspect of Indian settlement pattern in central Idaho that may be germane to this issue. He states that "territories were mutually respected, though they were nowhere actually delimited, since only certain localities were inhabited, leaving large tracts of neutral ground." Certainly both the Nez Perce and the Shoshoni used the central Idaho mountains for hunting. Berreman (1937:11) suggests that "more often than not a tribe which occupies the lower courses of a river claims its upper drainage basin as hunting territory;" he attributes the idea of rivers as "barriers" or "boundaries" to Euro-American expectations, rather than to aboriginal realities. Shoshoni use of the mountains has already been mentioned; the Indian Claims Commission studies map temporary Nez Perce "hunting and fishing sites" on Bull Creek, at the mouth of Big Creek, at the mouth of the Middle Fork, and on the main Salmon River, 20 miles east of Riggins (Chalfant 1974:375; compare with Steward 1938:136, and with Figures 3, 4, 5, and 6 in this report).

Many scholars mention a "zone of interpenetration" between adjacent ethnic groups; both early explorers and recent ethnographers describe Nez Perce groups in Shoshoni "territory," and vice versa, for the purposes of trade, marriage, winter residence, and warfare (see Figure 5). Even Liljeblad (1957:99) states that the "tukudeka" wintered "occasionally" with Nez Perce at the Salmon/Snake River confluence, although he asserts that "there was no trade contact in historic times between Nez Perce and groups of horse-owning Shoshoni (1957:89). Liljeblad continues, "there is no reason to believe that there was ever any route of communication across the mountains between these two ethnic groups" (1957:89), but Chalfant (1974) and Shawley (1977) both map several trails across and around the mountains, including one that winds eastward across Chamberlain Basin and crosses the Middle Fork just north of Big Creek (Figure 10). An historical study of the Nez Perce in fact describes the "upper valley of the Salmon" River as a "popular wintering place" in "buffalo country" (Haines 1955:71).

The question "Who lived in the Salmon River Mountains?" is really a question of which ethnographic pattern is most appropriate for predicting or explaining the nature and distribution of archaeological materials in central

FIGURE 9

Location of the Sahaptin-Numic "boundary" as described by various authors.

Map numbers correspond to the following sources: (1) Ross 1924; (2) Mooney 1894; (3) Osborne 1957; (4) Chalfant 1974; (5) Swanton 1952; (6) Marshall 1977; (7) Stewart 1957, 1966.

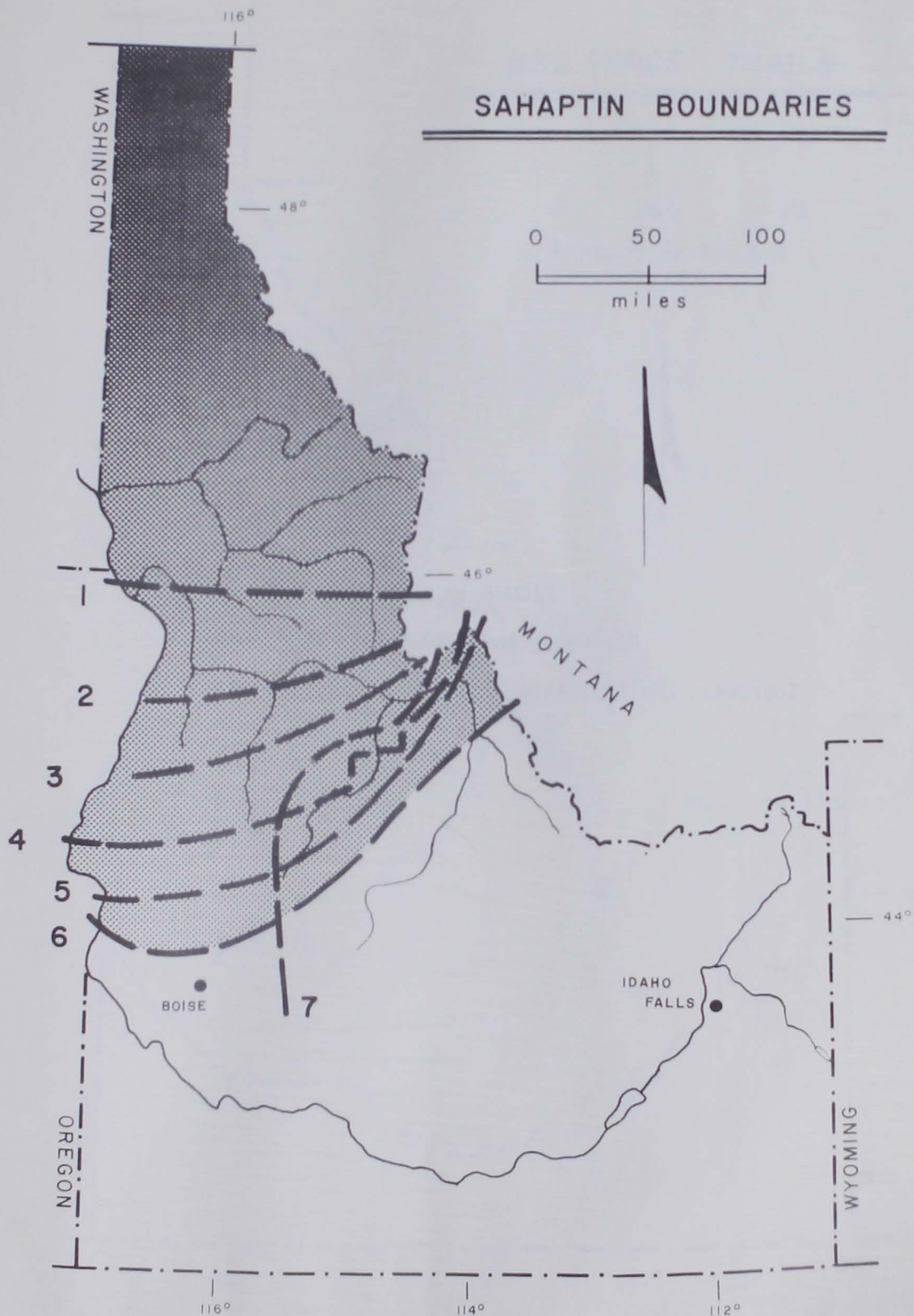


figure 9

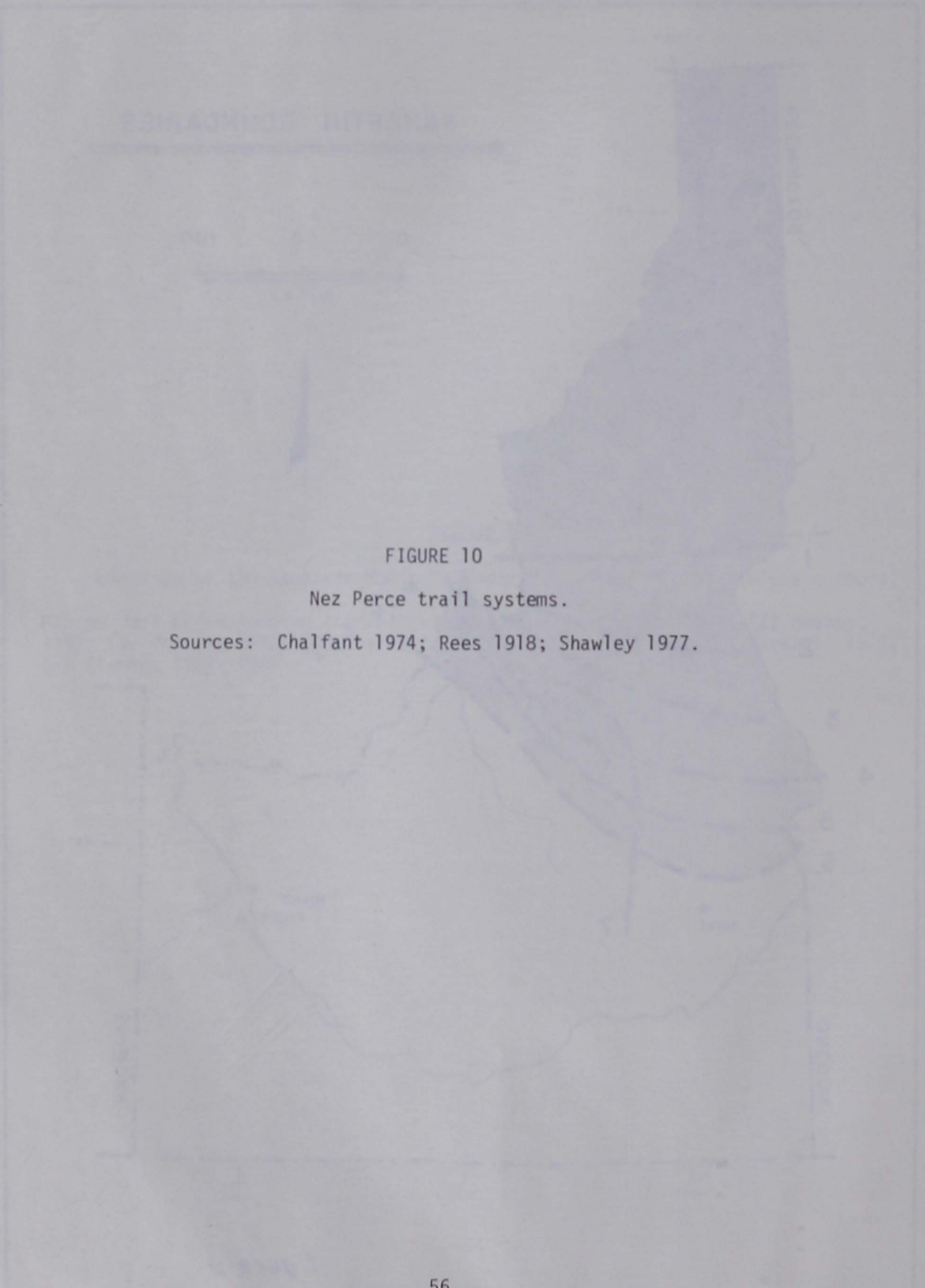


FIGURE 10

Nez Perce trail systems.

Sources: Chalfant 1974; Rees 1918; Shawley 1977.

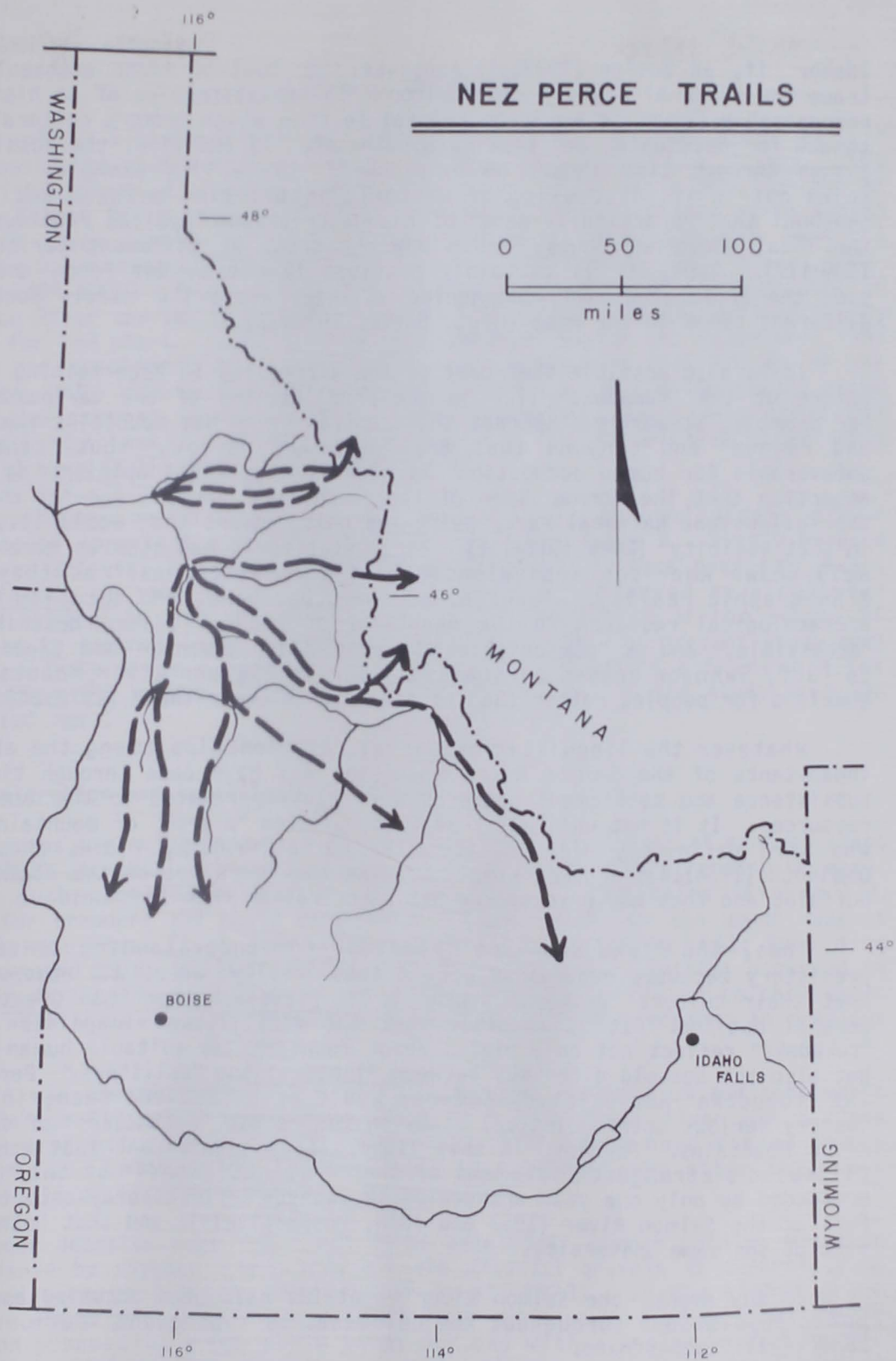


figure 10

Idaho. If, as Butler (1978b:1) suggests, one goal of Idaho archaeology is to trace the cultural history and environmental relationships of an historically-recognisable group, it would be helpful to know which group's cultural patterns to use for developing and testing hypotheses. In addition, the possibility of change through time cannot be overlooked. Lowie, for example, is quick to point out in his discussion of historic hostilities between Nez Perce and Shoshoni that "practically none" of his descriptions "applies rigorously to all the local Shoshone groups, or to any one group at different periods" (Lowie 1909:172). Thus, it is certainly possible that both Nez Perce and Shoshoni used the archaeologically-documented villages along the Middle Fork, but at different times in the past (e.g., Butler 1978a:2).

It is also possible that part of the difficulty in ascertaining the "true" nature of the "tukudeka" lies in the predilections of the various observers. For example, Steward's statement that central Idaho has mountains that are "high and rugged" and canyons that are "deep and narrow," thus "rendering it unfavorable for human occupation" is clearly a personal opinion, as is Rees's assertion that the former home of the "tukuarika" Indians was "at one time in the Yellowstone National Park, being the only Indians that would live there or in that vicinity" (Rees 1918:116). These statements may stem as much from the well-known American ambivalence about the "wilderness" as they do from ethnographic reality. Swanson, on the other hand, who actually conducted archaeological research in the mountains of central Idaho, describes it as "accessible," and a "comfortable place to live" (Swanson and Sneed 1966:44). In fact, Swanson argues persuasively for the Salmon River Mountains as "a homeland for peoples rather than as a barrier between them" (1972:24).

Whatever the linguistic or social relationships among the aboriginal inhabitants of the Salmon River Mountains may have been through time, their subsistence and settlement patterns were closely related to the land and its resources. It is not unlikely that there existed "a group of mountain dwellers who were definitely distinct from the buffalo-hunting Plains Shoshoni," as Dominick (1964:143) argues, simply because they were not on the Plains hunting buffalo, and they may have spoken Nez Perce rather than Shoshoni.

Thus, the "tukudeka" are important for understanding central Idaho prehistory because, regardless of who they "really" were, all observers agree that their cultural patterns appear to be Plateau rather than Great Basin in general outline. It is possible that the conflicting viewpoints about the "tukudeka" reflect not only biases about mountains as suitable human habitats, but also the age-old dichotomy between "lumpers" and "splitters." Perhaps, had the "tukudeka" not existed, someone would have invented them, in order to justify serious anthropological study in the remote "fastnesses" of the Salmon River Mountains. Perhaps, in this light, it is significant that ethnographer Liljeblad's strongest statement of the "distinctiveness" of the "tukudeka" preceded by only one year archaeologist Swanson's first foray onto the Middle Fork of the Salmon River (1957 and 1958, respectively), and that both scholars were at the same university.

In any event, the Salmon River Mountains have been occupied and used by human populations throughout the Holocene, as subsequent sections of this report will demonstrate.

HISTORICAL BACKGROUND

The written history of central Idaho begins with Lewis and Clark, who, in 1805, crossed the continental divide and entered the Lemhi River Valley. They camped with a group of Shoshoni there, then moved on to the middle portion of the main Salmon River near North Fork; eventually, they detoured north around the Salmon River portion of the current study area, and proceeded down the Clearwater River drainage on their way west to the Pacific coast (Coues 1893; Thwaites 1904-1905). Thus, they set a pattern for Euro-American avoidance of the Salmon River and the mountains of central Idaho that was to continue nearly unbroken for 150 years. Despite occasional ventures inside the study area, and founding and settlement of several small communities on the fringes of the study area, only after World War II did large numbers of Euro-Americans enter and use the central Idaho mountains; significantly, they were attracted specifically by the "isolation" they found, and the "primitive" experiences they could have in the Idaho Primitive Area.

The discussion that follows is not strictly chronological; for a chronology of important events in central Idaho, see Table 5. Simply because an event or activity can be assigned a place in time or space does not entail that evidence of that event or activity will be preserved as a cultural resource subject to management decisions. In fact, most of the events of importance to central Idaho history occurred outside of the present study area boundary. Only those events and activities that provide a framework for understanding the nature of the cultural resource base in the study area are highlighted here.

Early Exploration and Settlement

Numerous exploring expeditions travelled around the edges of central Idaho between 1811 and 1845, prompted by the search for likely fur-trapping streams, but few such parties penetrated the Salmon River Mountains (Figure 11). Several fur trappers and early expedition leaders camped on the upper reaches of the Salmon River (e.g., Ferris 1940; Haines 1971; Irving 1961; Spaulding 1956; Townsend 1978; Williams 1971), but most of their activities occurred in the Rocky Mountains to the east, or on the Snake River Plain to the south. Much of what these "explorers" observed has already been described in previous sections.

Gold was the resource that finally stimulated exploration and settlement in the Salmon River Mountains themselves; as a stimulus, silver ran a close second. Prospectors and miners fresh from triumphs or near misses in the California and Colorado gold rushes came in turn to Idaho after the first American gold discoveries near Florence in 1860.

Placer deposits were the first to be developed; simple panning could be accomplished by anyone, and nearly all the alluvial gravels in central Idaho contained some gold (Capps 1940; Cater et al. 1973). In the higher grade deposits, where gold values were from \$3-4 per cubic yard, a miner could easily get by on processing a few cubic yards per day with a pan or simple rocker (Idaho Historical Society 1964c). In 1861, placers produced gold valued at \$2.4 million (Idaho Historical Society 1960).

TABLE 5

HISTORICAL CHRONOLOGY IN CENTRAL IDAHO

Note: Events related to the study area in **Boldface**

Year	Event
1805	Lewis and Clark see, and detour around, Salmon River Canyon
1811	Hunt's Astoria expedition travels through Idaho
1812	Stuart returns from Astoria via southern Idaho
1818	MacKenzie's Snake River expeditions begin (Northwest Fur Co.)
1823	Lemhi Valley battle between N.W. Fur Co. and Blackfeet Indians First U.S. fur company organized (Rocky Mountain Fur Co.)
1824	Jedediah Smith's expeditions for Rocky Mountain Fur Co.
1825	Peter Skene Ogden's expeditions for Hudson's Bay Co.
1829	Joseph Meek (Rocky Mtn. Fur Co.) competes with Hudson's Bay Co.
1830	John Work's expeditions (Hudson's Bay Co.)
1831	Kit Carson (Rocky Mountain Fur Co.) winters on Salmon River
1832	Nez Perce go to St. Louis to bring back missionaries Bonneville winters on Salmon River
1835	Samuel Parker traverses Lemhi and Salmon River Valleys
1836	Mission founded at Lapwai, Idaho
1840	Joel P. Walker brings first overland immigrants through Idaho
1841	Charles Wilkes expedition goes through Idaho
1842	John C. Fremont mapped South Pass through Rocky Mountains
1843	Fremont's Snake Country expedition
1847	Whitman Massacre, Washington
1848	Idaho becomes part of Oregon Territory
1852	First gold discovered in Idaho, at Pend Oreille
1853	Father de Smet founds mission at Coeur d'Alene Isaac Stevens conducts first railroad survey through Idaho Washington Territory created, splitting north and south Idaho

- 1855 **First treaty with Nez Perce Indians**
Lemhi Mission established by Mormons
- 1859 Oregon becomes a state; Idaho now part of Washington Territory
- 1860 **Gold discovered on Oro Fino Creek, central Idaho**
- 1861 Town of Lewiston established on Nez Perce Reservation land
First gold rush to Florence
- 1862 Gold discovered in Boise Basin
National Homestead Act gives 160 acres to settlers who improve it
First gold rush to Warren's
- 1863 Idaho Territory formed, to give miners control over local politics
Lode claims located in Boise Basin
Placer gold claims staked on Jordan Creek
Silver discovered on Jordan Creek
Second Nez Perce Treaty, reducing size of reservation
Macgruder party attacked at Nez Perce Pass
- 1864 Montana created out of Idaho Territory
- 1866 **Public land surveys begin**
- 1868 Wyoming splits from Idaho Territory when railroad arrives
- 1869 **Placer gold discovered at Oro Grande, on Loon Creek**
- 1870 Federal Placer Mining Act, allowing patenting of placer claims
- 1871 Hayden surveys Snake River headwaters for U.S. Geological Survey
- 1872 **Present form of Federal mining laws established**
- 1874 Utah Northern builds first railroad in Idaho
- 1875 **Lemhi Indian Reservation created**
- 1877 National Desert Land Act gives 320 acres to settler who improves it
Nez Perce War
- 1878 National Timber and Stone Act passed
Bannock War
- 1879 **Sheepeater War**
- 1880 Lead-silver mines founded at Wood River
- 1890 Idaho Statehood
Great Northern Railroad crosses Idaho
- 1891 **State wagons roads connect north and south Idaho along Salmon River**
- 1895 State mining laws require 10' shaft within 60 days of filing claim

- 1897 Bison first protected by state law
- 1901 Lode gold discovered at Thunder Mountain
- 1905 Lemhi Indians agree to go to Ft. Hall
Forest Service created
- 1906 Largest mill in U.S. built by Weyerhaeuser at Potlatch, Idaho
- 1907 First forest fire wardens appointed
Lemhi Indians actually move to Ft. Hall
- 1908 Idaho Forest Reserves created by Teddy Roosevelt
- 1909 Payette Lakes and Shoshone Falls made state parks
- 1910 Northern Pacific Railroad along Salmon River
- 1911 Weeks Law passed
- 1916 National Grazing Homestead Act gives 320 acres to ranchers
- 1931 Idaho Primitive Area created
- 1964 Wilderness Act passed
- 1968 Middle Fork Salmon River designated Wild and Scenic River
- 1980 Central Idaho Wilderness Act passed

Sources:

Idaho Historical Society 1963
Rees 1918

More towns were founded during the 1861-1870 decade in central Idaho than at any time thereafter, and all except Dixie were dependent on placer rather than lode mining (Table 6; Idaho Historical Society 1965a, 1970b). Eventually sluices and hydraulic giants were used to process the gravels, at a rate of up to 500 cubic yards a day. These methods enabled miners to make profits by working deposits worth as little as 5 cents per cubic yard (Idaho Historical Society 1964c).

Miners were dependent to some extent on external markets for their product, but like the fur traders before them, they also could use their commodity directly as both a local and a long-distance medium of exchange. Unlike the fur traders, who abandoned central Idaho when their resource was used up, the miners simply switched to another mineral species, or altered their technology to wrest even more metal from the ore (Idaho Historical Society 1962, 1964c). In fact, although mining per se is an important early non-aboriginal human use of central Idaho, such use has extended either sporadically or continuously to the present, depending on specific locale (Table 6). The distribution of prospectors and mines, the nature of mining technology and of the mineral species exploited, and the ratio of men to women and children in the local supply-centers-turned-towns (Table 7) show important changes through time in central Idaho. Most of the "action", however, was outside the boundaries of the study area, and in fact strongly influenced the drawing of those boundaries over a century later (U.S. Congress 1979).

Prospecting can occur anywhere; actual mining is profitable only when and where (1) mineral resources exist and are recognized; (2) appropriate extraction and processing technologies are available; (3) external markets (and transportation to them) exist; and (4) sufficient capital can be attracted to develop the mine. The chronology of Idaho mining and the attendant changes in land use illustrate these issues very well.

In the 1890's, after the early surge of placer gold mining, over 5400 mining claims were filed in central Idaho (Cater et al. 1973; Rees 1918). Of the 60 claims that eventually went to patent, 58 (totalling 857 acres) are in the Thunder Mountain District, just outside the study area boundary; nearly 1700 claims were filed in that District alone (Cater et al. 1973:64). Ramey Ridge, inside the study area just north of Big Creek, saw the most activity after 1900, with over 600 claims staked there for lode mining (Cater et al. 1973: 107-108, 120). The Snowshoe Mine camp, used intermittently from 1905 to after World War II, housed up to 60 people at a time, and included bunkhouses, shops, a mill, and a schoolhouse (Cater et al. 1973:163). The Thunder Mountain District, which actually "boomed" from 1902 to 1909, had the most easily accessible gold and silver of any of the central Idaho mines; development of the Dewey and Sunyside mines there stimulated founding of the town of Roosevelt, on upper Monumental Creek (Carrey and Conley 1980:136; Cater et al. 1973:2; Idaho Historical Society 1964d). When a slide on Monumental Creek backed up the flow and flooded Roosevelt, however, the town was already dying; the gold had been "gouged" out, and the miners moved elsewhere (Idaho Historical Society 1966).

A great deal of mining effort was devoted to developing lodes in the areas around Florence and Warren's, northwest of the study area, beginning in the 1860's; the Bayhorse mining district, in the late 1870's; and the lodes along the Yankee Fork of the Salmon River, in the 1890's (Idaho Historical Society 1965a, b, c; Luebbert 1978c; Vlasich 1980). Those who did not have the capital

FIGURE 11

Locations of fur trade posts and camps, 1809-1856.

Sources: Haines 1971; Idaho Historical Society; 1969b, 1970a, 1973; Rich 1950; Spaulding 1956; Williams 1971.

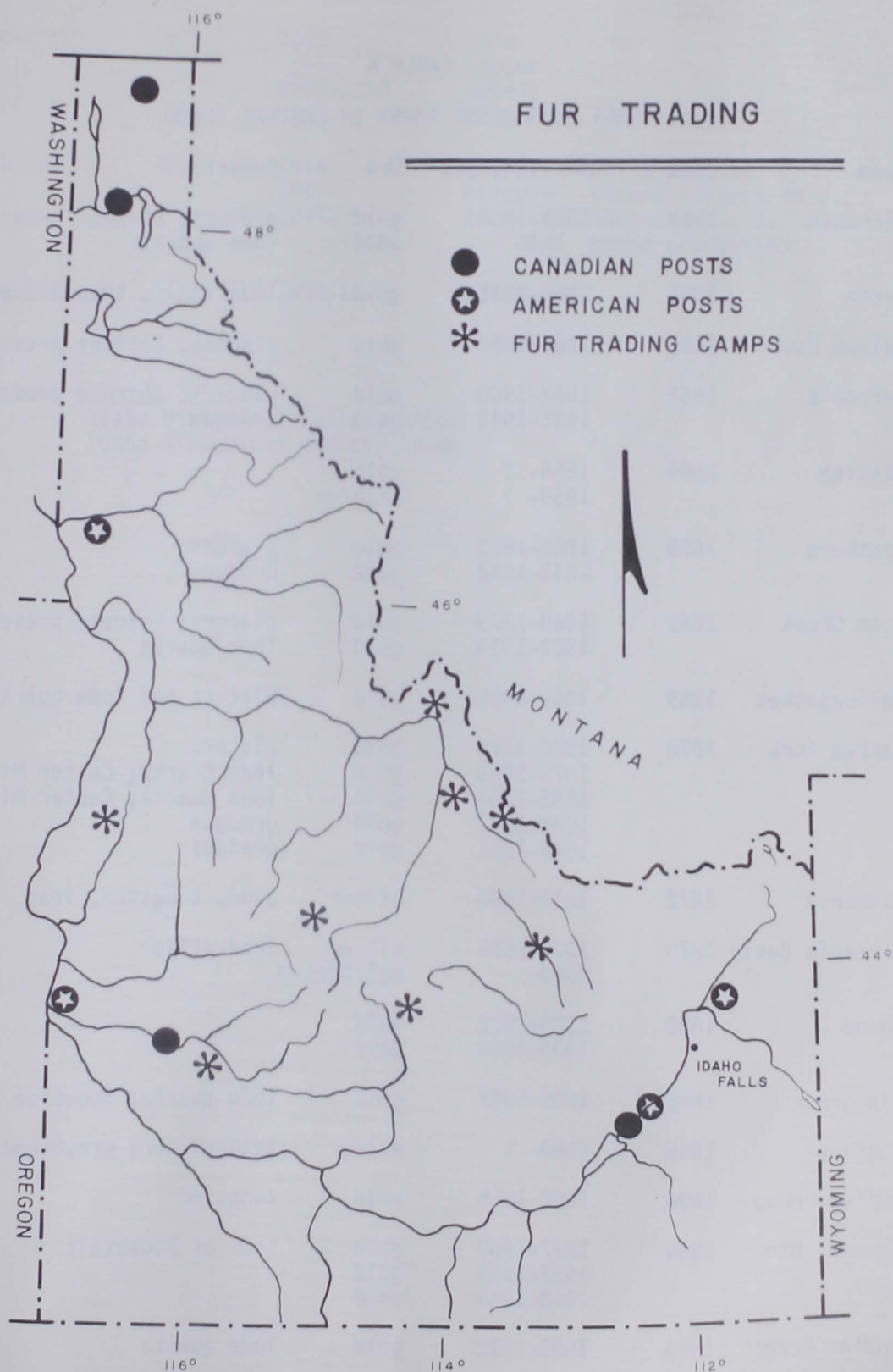


figure 11

TABLE 6
MINES AND MINING TOWNS IN CENTRAL IDAHO

Area	Date	Active years	Ore	Remarks
Florence	1861	1861-1864 1896	gold gold	placers; Chinese present lode quartz
Dixie	1861	1884-1935	gold	lode early, then placers
Salmon River	1861	1861-1862	gold	placers; Chinese present
Warren's	1862	1862-1900 1931-1942	gold gold	placers; Chinese present dredges
Stanley	1864	1864- ? 1958- ?	gold uranium	
Leesburg	1866	1866-1892 1941-1942	gold gold	placers dredges
Loon Creek	1869	1869-1879 1902-1914	gold gold	placers; Chinese present lode quartz
Yellowjacket	1869	1869-1900	gold	placers and lode quartz
Yankee Fork	1870	1870-1876 1879-1886 1895-1904 1939-1942 1946-1951	gold gold gold gold gold	placers lode quartz; Custer Mill lode quartz; Custer Mill dredges dredges
Bayhorse	1872	1877-1898	silver	zinc, tungsten, lead
Germania Basin	1879	1879-1930 1968-	silver molybdenum	lead-silver
Shoup	1880	1880-1902 1935-1942	gold gold	
Big Creek	1885	1906-1942	gold	lode quartz; Snowshoe Mine
Seafoam	1886	1886- ?	silver	lead-silver; Greyhound Mine
Buffalo Hump	1894	1898-1915	gold	tungsten
Thunder Mtn.	1894	1897-1909 1937-1939 1948-1949	gold gold gold	town of Roosevelt
Indian Creek	1895	1902-1912	gold	lode quartz

Blackbird	1901	1893- 1896- 1939-1960 1967-	gold copper cobalt copper	reactivated
Stibnite	1914	1914- 1943- 1944- -1952	gold mercury tungsten	antimony, too second largest in U.S. largest in U.S. ended production
Bear Valley	?	1953-1959	uranium	

Sources:

Idaho Historical Society 1965c
Idaho Historical Society 1970b

TABLE 7

POPULATION OF CENTRAL IDAHO GOLD CAMPS, 1863 AND 1864

Location	1863	1864
Atlanta	---	142-1-4
Elk City	346-17-9	198-13-8
Florence	575-0-0	222-11-21
Miller's Camp	---	36-0-0
Warren's	660-0-0	509-10-2

Note: Population figures for Men--Women--Children, in that order

Sources:

Idaho Historical Society 1964a, b

or the connections to finance large lode mining operations, or the mills to process the ore, continued to participate in placer mining wherever potential deposits existed. Along Big Creek, for example, "all the alluvial deposits were originally located as placer claims" (Cater et al. 1973:160), and prospectors often worked high mountain meadows in hopes of finding gold (Cater et al. 1973:121).

Where miners congregated, settlements soon arose to meet their demands for supplies, lodging, and social life. The prospect of customers stimulated development of mercantile businesses, and residential and industrial land development. Most of the actual communities of central Idaho were outside the study area (Figure 12), but their prosperity depended to a certain extent on mining activities within the study area. The towns of Custer, Bonanza, Florence, Leesburg, Loon Creek, Oro Grande, Roosevelt, Stanley, Stibnite, and Warren's initially were settled by miners, and developed by merchants, laborers, entrepreneurs, and others associated with and profiting from the presence of miners (see, e.g., Carrey and Conley 1978, 1980; Luebbert 1978c; Vlasich 1980; Yarber 1963).

The "boom and bust" syndrome affected most of these towns. Oro Grande, for example, had 7 stores, 7 saloons, 3 boarding houses, and 2 express offices in 1869, the same year the rush began to the nearby Loon Creek mines. By the next year, there were 2 more hotels, and 2 sawmills to provide lumber for the new dwellings built to house the more-or-less permanent population of 200 persons (Idaho Historical Society 1965b). Within two years, however, the already high proportion (35%) of Chinese had risen to 50%, and finally to 100%; the sole occupants of Oro Grande in 1879 were the five Chinese whose deaths precipitated the "Sheepeater War" (Idaho Historical Society 1965b). Extensive documentation for remains of the townsite of Custer (1879-1911) illustrates an essentially similar cycle, broken only temporarily when the Lost Packer Mine was opened in 1902 (Luebbert 1978a, b, c; Idaho Historical Society 1965b; Markley 1978, 1979; Markley and Nordling 1979; Nordling 1979a, b, c; Wylie 1978b).

Settlement within the central Idaho mountains themselves was more scattered, but it too was usually the result of mining. For example, those solitary miners who worked the placer deposits along the major rivers and streams often constructed dwellings, and sometimes added various outbuildings through the years (e.g., Bennett 1980). Hartung (1980) points out that, for the Big Creek area, the intensity of mining and the intensity of settlement were related; as the mineral yields decreased, so did the population. Those miners who did not leave the area, often turned to ranching or farming, first as suppliers to other miners and mining camps, then on their own (Carrey and Conley 1980). Cabins they had built as temporary homes often were converted for use as outbuildings once the "big house" was built and the family was moved in (Wilson 1981:8).

As the federal and state governments enacted laws to regulate mining and settlement, one or another activity would enable a person or a family to stay on in the territory they had "homesteaded," whether or not the land ever went to patent. These households thus functioned as "colonizing units" on the central Idaho frontier (Hardesty 1980:71). The only "rush" to settlement in the central Idaho mountains occurred around the time of the Weeks Law of 1911,

FIGURE 12

Mining and town and areas in central Idaho.

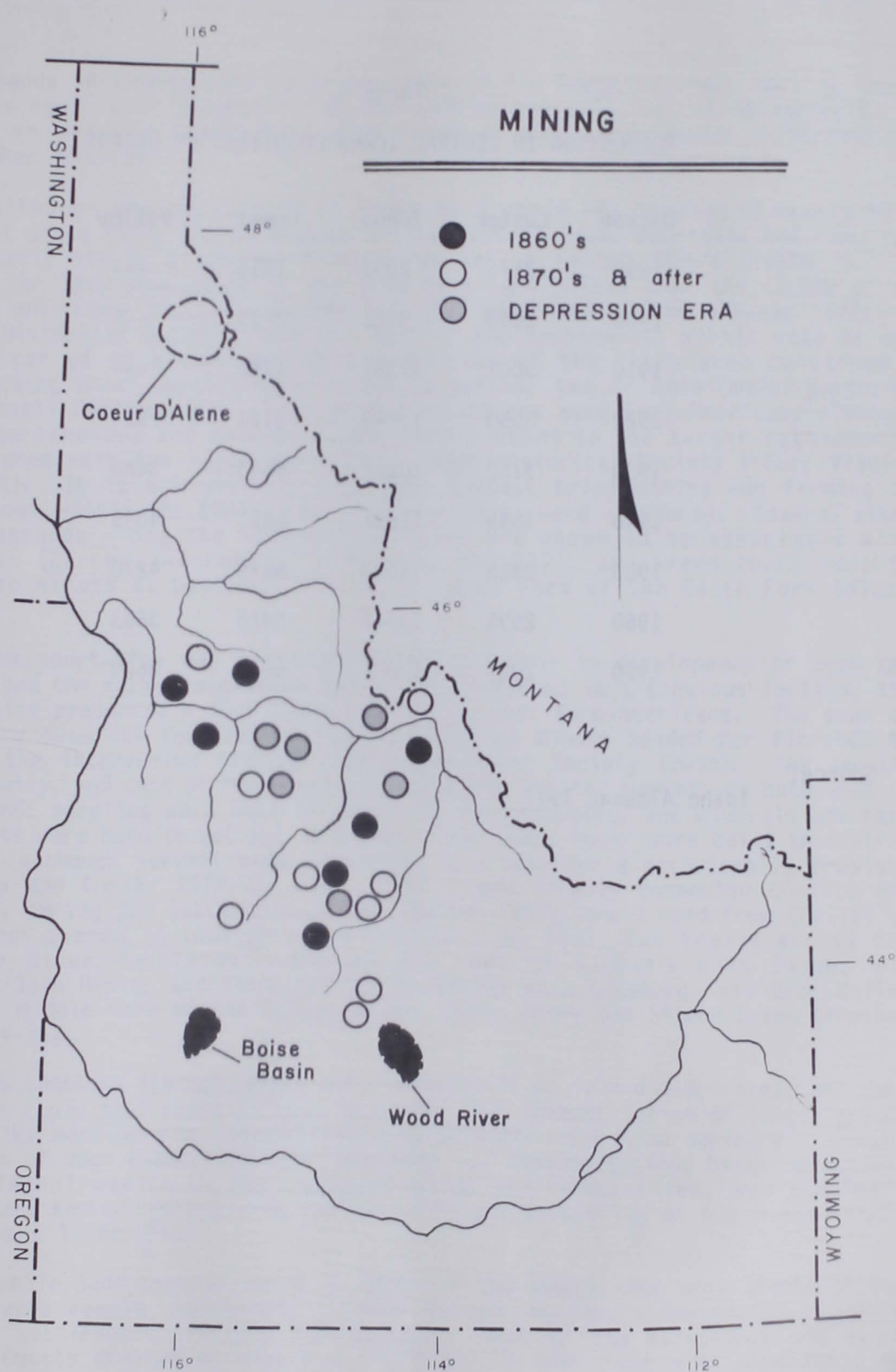


figure 12

TABLE 8
POPULATION IN CENTRAL IDAHO COUNTIES, BY DECADE

Decade	Custer	Idaho	Lemhi	Valley
1890	2176	2955	1915	---
1900	2049	9121	3446	---
1910	3001	12384	4786	---
1920	3550	11749	5164	2524
1930	3162	10107	4643	3488
1940	3549	12691	6521	4035
1950	3318	11423	6278	4270
1960	2996	13542	5816	3663
1970	2967	12891	5566	3609

Source:
Idaho Almanac 1977

when lands in Chamberlain Basin were opened for homesteading. Most of these parcels never went to patent. By the 1930's, the only "so-called agricultural lands in private ownership" were small tracts along major watercourses (Scribner 1931:3).

Although the population of Idaho as a whole has increased nearly 4000 percent since 1870, the population of the central Idaho mountains has remained remarkably stable since the first large influx in the 1890's (Table 8). In fact, the 1960 population of the area is slightly less than the 10,000 or so people who came initially during the 1862 gold rush (Idaho Almanac 1977:315; Idaho Historical Society 1965a:1). Most of the settlements within what is now the River of No Return Wilderness portion of the study area contained a "colonizing unit" consisting of a single person, two or more (male) partners, or a small family group. Most of these settlers were Euro-American, although Chinese laborers and entrepreneurs were present in the larger settlements associated with the major mines (e.g., Idaho Historical Society 1965b; Vlasich 1980:22). It is not unlikely that some Chinese tried mining and farming on their own within the study area after the towns were abandoned. Several sites and features along the main Salmon River are known to be associated with Chinese (Carrey and Conley 1978: 203, 221-227), and Green (n.d.) reports Chinese miners at Deadman's Bar on the East Fork of the South Fork Salmon River.

Transportation was a primary limiting factor in development of both the mines and the farms in central Idaho. As discussed in a previous section, the mountains presented a formidable barrier to most Euro-Americans. The town of Leesburg owed its founding to the inability of miners headed for Florence to cross the intervening country (Idaho Historical Society 1969b). The length, difficulty, and cost of transportation networks limited markets at both ends of the road: supplies were hard to obtain in the mountains, and minerals and farm products were hard to get out to market. Railroads never were built in central Idaho, although surveys were conducted, and lines were occasionally promised (Carrey and Conley 1978:10, 18). A toll road finally connected Challis and Custer, during the latter's boom days (Yarber 1963), and a road from Challis to Bayhorse opened in 1884 (Vlasich 1980:23). By 1891, two trails across the Salmon River Mountains connected the town of Warren's with Shoup, via Chamberlain Basin, and connected Garden Valley with Leesburg, via Bear Valley Creek, Middle Fork of the Salmon River, Camas Creek and Silver Creek (Preston 1978:34-35).

As Luebbert (1978c) points out, individuals could and did travel, and pack strings could haul supplies even in winter, but transportation of larger groups and bulky machinery or commodities were severely restricted during all seasons because of poor roads. In fact, the need for transportation, balanced against the mineral wealth of the isolated mines and communities, was the "most important factor...determining the longevity and prosperity of the mining camps (Luebbert 1978c:137).

Public land surveys began in Idaho in the 1860's, but vast tracts of the study area remain unsurveyed, in part because mapping concentrated on lands around settlements (Preston 1978:passim). Some of the structures and other improvements created by miners and settlers in the study area were noted on General Land Office township plats around the turn of the century, but not all such improvements were recorded, and not all areas were covered by the survey

staff. By 1905, the need for continuing such surveys was diminished, for in that year President Theodore Roosevelt created Forest Reserves (later, National Forests) out of the otherwise undifferentiated public lands of central Idaho (Wengert and Dyer 1979:41-42). A total of almost 7.5 million acres was set aside for forest purposes. Today these lands are administered by the U.S. Department of Agriculture as the Bitterroot, Boise, Challis, Nezperce, Payette, and Salmon National Forests.

Twentieth Century Land Uses

Designation of these lands as National Forests changed the nature of their human uses. Mining was, and still is, permitted under the 1872 mining laws, but additional permanent settlement was discouraged. By 1931, less than 3100 acres had been successfully homesteaded, and only 1165 acres of patented mineral lands existed in the Idaho Primitive Area (Table 9). Human interaction with the natural and cultural environment was determined by national or regional policies, not by local needs. For example, emphasis on fire suppression altered the ecological succession of Rocky Mountain plant communities (Habeck and Mutch 1973), and structures and dwellings were built or removed for the benefit of government land managers rather than miners and settlers (Scribner 1931).

As the mines and their associated settlements were abandoned because ores were depleted and national monetary policy changed (Beal and Wells 1959; Luebbert 1978c), some cabins and other structures were taken over by the Forest Service for administrative use (Table 10). Other properties, whether patented or not, began to change hands; new owners added to existing buildings, or tore them down and built new ones (Carrey and Conley 1978, 1980).

Those farmers and miners whose land had gone to patent still had to contend with their transportation problems, as did the Forest Service administrators. No roads had been built; trails remained the sole means of moving animals, people, and supplies. By the 1930's, airplanes provided limited access to the few farms and ranches that still existed, and enabled Forest Service administrators and firefighters to enter the area when their duties so required. The 1930's also saw the creation of economic programs at the national level, such as the Civilian Conservation Corps, that provided laborers for various public construction projects. Thus, the first road was built down the Salmon River as far as Corn Creek, and a number of bridges were installed at dangerous river crossings (Carrey and Conley 1978:84, 189).

Despite the horrible prospect that faced Lewis and Clark in 1805 (Coues 1893:522), the major rivers have been the major travel corridors through central Idaho from the 1890's until the present. One-way (downstream) boat trips began on the main Salmon River in 1896 (Carrey and Conley 1978:24). "Return" trips were not made generally until after World War II, although one gintrepid adventurer is alleged to have travelled upstream in the 1860's (Carrey and Conley 1978:57). Several ferries across the main Salmon were operated beginning at the turn of the century (Carrey and Conley 1978:146, 162). The first pleasure trip down the "River of No Return" occurred in October, 1929; it heralded another change in land use for central Idaho (Carrey and Conley 1978:48).

TABLE 9

PATENTED LANDS IN THE IDAHO PRIMITIVE AREA, 1931

Homesteads	Acreage
E. O. Eakin	27.83
R. A. Hilands	85.19
W. A. Stonebraker	408.63
Jesse Root	157.65
W. A. Estep	32.10
Joseph R. Elliott	160.00
Elizabeth Bellingham	160.00
Orlando Mabel	160.00
Archie Bacon	160.00
Arthur D. Cerden	160.00
Dave Lewis	64.84
Roy A. Elliot	95.26
William Mitchell & Lovell & Warnock	307.00
Five parcels w/o names, plus Jone	438.32
I. R. Wilson & Crandell Ranch	<u>632.34</u>
Total	3049.16 acres

Mineral lands

Dewey Group	164.65
F. W. Holcomb	249.94
G. M. Parsons (Blackbird Placer)	57.68
Thunder Mountain Climax Group	24.64
Thunder Mountain Barlock Golden Group	53.19
Hawkeye Group and Elk Group	43.13
Wanderer Group	76.41
Cheapman's Group and Pearl's Group	354.09
Buffalo Lode	20.66
Blackhorse and Shiner Lodes	27.28
Eagle Group	<u>94.15</u>
Total	1165.82 acres

Source:

Scribner 1931

TABLE 10

EXISTING AND PROPOSED IMPROVEMENTS IN IDAHO PRIMITIVE AREA, 1931

Improvement	Existing	Proposed
Trails	938 miles	186 miles
Telephone lines	249 miles	21 miles
Bridges	6	6
Lookout structures	5	3
Smokechaser cabins	5	3
Other cabins and storehouses	10	6
Cabins for game management	---	3
Fences	1.25 miles	---

Source:

Scribner 1931

In 1931, over 1 million acres of National Forest land in the Salmon River Mountains were included in the newly-designated Idaho Primitive Area. As Scribner (1931:2) points out, this area was created "to conserve primitive conditions of environment, habitation, subsistence and transportation for the enjoyment of those who cherish the early traditions and history of this country," and for those who "desire to preserve in some degree, the traits, qualities and characteristics upon which this Nation was founded." Less than 4,500 acres were in private ownership; transportation facilities included one "informal" airplane landing field in Chamberlain Basin, and 938 miles of trails (Scribner 1931:22; see Tables 9 and 10).

The Great Depression was the only period in which counties of central Idaho lost population (see Table 8). Forest Service efforts to prevent fires and improve administration of the Idaho Primitive Area created jobs for local citizens, and also brought in outsiders in relatively large numbers for the first time (Simpson and Jackman 1967). Those who could afford to turned to outdoor recreation, as suppliers or as consumers. Publicity from a 1933 National Geographic expedition down the Salmon River attracted boating and fishing enthusiasts to central Idaho just as the original farms and mines were feeling the economic pressures from the Depression. Once again, the character of land use in the study area was changing, as the ranchers and farmers became hunting guides and boat operators.

Cattle had been allowed to graze in central Idaho since about 1885, and domestic sheep had been introduced in the late 1890's (Philips 1972:4). Allotments for livestock grazing were begun by the Forest Service between 1905 and 1920, but they were gradually phased out. With the increase in back-country recreation after the Depression, horse use increased dramatically, and horse travel over trails and bridges became the major transportation method within the study area (U.S.D.A.-Forest Service 1976). New "settlers" came expressly to create recreation-oriented facilities, sometimes by taking over existing farms and ranches (Carrey and Conley 1978, 1980:passim). After World War II, most of the present recreation-oriented facilities assumed their modern form; some previously existing structures were dismantled, some new ones built. By 1976, 18 airstrips and 1,284 miles of trail provided access and internal transportation within the study area (U.S.D.A.-Forest Service 1976:30, 33).

The patterns of historic land use in central Idaho are the result of a complex interplay between local, regional, and national factors. Existence of minerals, or of grazing and agricultural land, combined with willingness of persons to settle and exploit these resources, as limited by the terrain and development of adequate transportation systems, controlled early historic land uses. National government policies of resource use, land management, and administration have controlled the more recent land uses. Although Hartung (1980) states that the Big Creek area exhibits "a complete development cycle," to a great extent central Idaho was--and is--a frontier that was arrested at an early stage of development, while surrounding communities leaped "almost directly from a pre-agricultural to an industrial and commercial economy" as suppliers to these isolated households (Pomeroy 1965:53).

Euro-American settlements in the study area remained sporadic, scattered, and ephemeral, in contrast to that of the native Americans before them. Resource exploitation was limited by inadequate transportation; in fact, the most famous historical "event" in central Idaho, the Sheepeater War, was a less than glorious demonstration of how poorly the new immigrants could travel in

TABLE 11

U.S. MILITARY ENGAGEMENTS WITH INDIANS IN IDAHO

Year	Location
1860	Snake River; Salmon Fork
1863	Soda Springs
1864	Grand Pass; Booneville; Salmon Falls
1865	Fort Boise; Bruneau Valley; Poison Creek; Owyhee River
1866	Owyhee River (3 conflicts); Owyhee Creek
1867	Warm Springs
1868	Camp Three Forks (Owyhee); Camp Lyon; Snake Canyon; Battle Creek; Juniper Canyon; Juniper Mountains
1869	Salmon River
1877	Nez Perce War: White Bird Canyon; Clearwater River; Cottonwood Ranch; Oro Fino Creek
1878	Ross Fork Agency; Bannock War: Bennett Creek Henry's Lake
1879	Sheepeater War: Big Creek; Chamberlain Basin; Big Meadow; Middle Fork Salmon River
1887	Weippe
1895	? (conflict with Bannocks; no location listed)

Source:

Idaho Historical Society 1971b

remote, mountainous terrain. Although the campaign left virtually no physical evidence of its occurrence, it had a profound effect on the minds and subsequent actions of the Euro-American immigrants.

The 1879 Sheepeater Campaign

One way or another, the events of 1879 removed the last non-white inhabitants of the Salmon River Mountains. Previous military engagements with Idaho Indians had taken place along the immigrant trails, or on lands claimed by Indians but coveted by settlers (Table 11). In contrast, the Sheepeater Campaign of 1879 was conducted to locate and remove a groups of Indians who were alleged to have murdered some Chinese miners at the settlement of Oro Grande, on Loon Creek (Brown 1926; Carrey 1968; Carrey and Conley 1980; Parke 1955; Parker 1968; Yeckel 1971). Neither the identity of the murderers nor the ethnic affiliation of the Indians who ultimately turned themselves in to the Army have been satisfactorily determined; the importance of the campaign lies in the fact that it provided Euro-Americans with their first real look at the Salmon River Mountains outside of the small mining towns around the edges.

The map of the various routes taken by the Army (Figure 13) was the first documentation of terrain, streams, and landmarks for the study area (Brown 1926; compare earlier maps in Preston 1978). Futhermore, the problems of morale, supply, and transportation faced during the campaign ensured that most later settlers would remain on the outer fringes of the area.

Whether the Indians sought for were actually "tukudeka," or were "renegades" from other Northern Shoshoni bands is moot; conflicting viewpoints regarding the Salmon River Mountain Indians have been discussed in an earlier section of this report. The Army not only found Indians within the mountains, they located several villages and camps (Brown 1926: 15, 16, 18); they saw fish traps and hunting blinds (Brown 1926:13, 16); and they travelled, however awkwardly, on Indian trails (Yeckel 1971:3, 6). Thus, reports from the Sheepeater War lend credence to the idea that Indians of central Idaho had long familiarity with the land and resources of the study area.

The Sheepeater War provided an economic boost to merchants in the surrounding mining towns, who kept the Army supplied (Yeckel 1971:9). It also effectively ended Indian occupation of the central Idaho mountains. The 15 "warriors" and their families who finally surrendered in the fall of 1879 were sent to existing reservations at Ft. Hall and Ft. Walla Walla. A few Shoshoni are reported to have stayed in the mountains until around 1900 (Madsen 1979), but essentially the land use patterns in central Idaho were changed forever.



FIGURE 13

Route of the U.S. Army during the Sheepeater War.

Source: Brown 1926.

ARCHAEOLOGICAL BACKGROUND

People have lived in and used the resources of the Rocky Mountain west since the waning of the glaciers, but the outlines of their prehistoric cultures have been developed only within the last few decades. Much of the outline remains to be filled in. Sequences of archaeological materials have been discovered at stratified sites in the Columbia Plateau, the northern Great Basin, and the northwestern Plains; models of prehistoric patterns of land and resource use have been constructed on the basis of these materials. This section describes the cultural patterns, artifact assemblages, and chronologies for the areas surrounding the study area, as a framework for assessing the archaeological materials within the study area.

Before turning to specific physiographic or cultural areas, it will be helpful to review four general models for western North American prehistory. These concepts provided the impetus for most of the recent archaeological work in the west, and one or another of them has guided the interpretation of archaeological materials from central Idaho over the past several decades.

Traditional Models of Northwest Prehistory

The first of these models was the Desert Culture concept (Jennings and Norbeck 1955), which postulated that prehistoric cultures in the arid west had maintained a pattern of reliance on vegetable foods (especially seeds), seasonal movements in response to availability of foodstuffs, and a more or less unchanging toolkit for ten or more millenia, in spite of variations in artifact styles, climates, and perhaps, ethnic affiliation. Hunting provided a portion of the subsistence, but the major emphasis was on gathering, and the major community type consisted of single-family groups with little widespread political unity. This pattern was first recognized in the Great Basin area; many archaeologists took the ethnographic patterns of the Shoshoni and Northern Paiute to be the historic expression of the Desert Culture.

The second pattern to be described was the Old Cordilleran Culture pattern (Butler 1961), which postulated the existence of a group of people adapted to a forested environment, dependent to some extent on hunting, fishing, and root gathering, and sharing an artifact assemblage characterized by lanceolate projectile points ("Cascade" points), edge-ground cobbles, and fishing paraphernalia (where evidence was preserved). Butler suggests that this pattern may be the "ancestral culture" on the southern Plateau, and that the historic Nez Perce pattern has its roots in the Old Cordilleran way of life (1965:1127). Although this pattern is based on previous findings in archaeological sites in the northwest, Butler emphasizes that he intends his idea to act as "a set of expectations to be tested by new observations" (1965:1126).

Daugherty (1962) postulated an Intermontane Western Tradition, which he suggests may account for the apparent similarity among environmental adaptations, artifact styles, and toolkits throughout western North America. He divides this Tradition into four "periods," based on changes in settlement pattern, subsistence base, and artifact types. During his "Late Period," from 0 A.D. to the present, different parts of the intermontane west developed different "area traditions," of which the Desert Culture is one, and the "Northwest Riverine" (i.e., Plateau) tradition is another (Daugherty 1962:147).

The fourth model is that of Swanson (1962a), who proposed that three "cultures" existed in northwestern North America: the Old Cordilleran, the Mountain/Plains, and the Bitterroot. He based his concepts on settlement and subsistence patterns, artifact types, and distribution of archaeological materials throughout the several natural environments in the northwest. He states that "present environments constitute evidence for past cultures," and concludes that "if there are multiple environments, we should expect multiple early cultures, and we should expect, further, that they too continue to the present day" (Swanson 1962a:151). Thus, the "Bitterroot" pattern was the prehistoric expression of the Northern Shoshoni, and the "Mountain/Plains" pattern was thought to correspond to the modern Plateau peoples (Swanson 1962a:84, 155). Swanson further suggests that archaeological sites that exhibit a "layer cake" sequence of cultural materials rather than a "continuum" of types may represent evidence of intercultural relations among these three cultures in the past (1962a:156).

The more substantive published critiques of these models (e.g., Browman and Munsell 1969; Jennings 1973; Leonhardy and Rice 1970; Swanson 1966) attempt to synthesize more recent archaeological findings. They emphasize variability rather than stability of patterns through time and space. In light of new data, including radiocarbon dates and technological analyses of stone tools, detailed inferences now are replacing some of these earlier concepts. Some of these recent findings are highlighted in the following sections.

Plateau Prehistory

Archaeological research in the Plateau, as elsewhere in the west, has focused on the relationship between hunting and gathering cultures and their natural environment. Accordingly, the climatic sequence of Antevs (1948, 1955) and the vegetation sequences of Hansen (1942, 1947) guided early attempts to develop a cultural chronology. Daugherty's sequence of four periods within the Intermontane Western Tradition (1962:144-147), for example, is based on Antevs' Anathermal-Altithermal-Medithermal climatic sequence (Table 12).

Browman and Munsell (1969:252-254) basically agree on the date of the beginning of modern Plateau culture, but divide the span of prehistory into seven periods (Table 13). In addition, they believe they see outside influences on Plateau patterns, from about 4,500 to 1,500 B.C.

The most recent chronological sequence developed for the Plateau is that of Leonhardy and Rice (1970), which consists of six named cultural phases based on artifact assemblages and radiocarbon dates from the lower Snake River. Their original divisions of Plateau prehistory are listed in Table 14. Recent revisions of this sequence (Leonhardy and Rice 1975; Rice 1981: personal communication) have omitted the Piquin Phase altogether, collapsing all the archaeological materials from that time period into the Harder Phase, which thus extends from 500 B.C. to 1700 A.D. In addition, the geographic area in which this sequence is recognized is expanded to include both the upper Clearwater River and central Washington.

In general, peoples throughout the Plateau seem to have shifted from a generalized way of life to one that was more specialized about the time of the climatic change represented by the Altithermal, although the specific nature and timing of this shift varies from place to place (see, e.g., Stryd 1971a). Bison hunting on the Plateau is documented in archaeological sites throughout

TABLE 12

THE INTERMONTANE WESTERN TRADITION

Period/Dates	Major characteristics
Early Period 9000-6000 B.C.	Anathermal environmental conditions Lanceolate projectile points No large herd animals (except locally, where bison were available) Subsistence varied according to local resources
Transitional Period 6000-2500 B.C.	Altithermal environmental conditions Settlement becomes more concentrated along rivers, due to environmental change Subsistence emphasis on fishing, with gathering and hunting of secondary importance Side-notched projectile points and food-grinding tools "Regional specialization" begins
Developmental Period 2500 B.C.-0 A.D.	Medithermal environmental conditions Expanding populations become more specialized, and more closely related to local subsistence resources
Late Period 0 A.D.-historic	Fully developed "area traditions"--Desert Culture, Northwest Riverine (Plateau) cultures

Source:

Daugherty 1962

TABLE 13
CULTURAL SEQUENCE ON THE COLUMBIA PLATEAU

Period/Dates	Characteristics
I 13,000-8,500 B.C.	Small nomadic groups Subsistence focus on large game (mountain sheep, deer, elk) Nondescript artifacts
II 8,500-6,000 B.C.	Three "area traditions," represented by tool types: Plains (fluted projectile points); Old Cordilleran (lanceolate points); Great Basin (large stemmed points; crescents) Subsistence generalized, using bison, elk, deer, antelope, vegetable foods, and fish
III 6,000-4,500 B.C.	"Florescence" of earlier patterns Cascade projectile points Edge-ground cobbles Microblades (?) Grinding slabs, handstones Subsistence based on large game, supplemented by seeds and fish Villages appear along rivers
IV, V 4500-1500 B.C.	Outside influences on Plateau cultures: Side-notched projectile points (Period IV) Corner-notched projectile points (Period V) Antler objects
VI 1500 B.C.-0 A.D.	Pithouses along rivers "Emergence" of Plateau Culture
VII 0 A.D.-1750 A.D.	Historic Plateau pattern

Source:

Browman and Munsell 1969

TABLE 14
LOWER SNAKE RIVER CULTURAL SEQUENCE

Phase/Dates	Characteristics
Windust 8000-7000 B.C.	Subsistence based on big game hunting (deer, elk, and antelope) No vegetable processing tools Cryptocrystalline silica preferred over basalt for flaked stone tools
Cascade 6000-3000 B.C.	Defined by "Cascade" projectile point (lanceolate, made on a blade) Salmon and bison added to the diet Grinding tools present (vegetable processing?) Basalt preferred over cryptocrystalline Late sub-phase marked by medium-to-large side-notched projectile points
Tucannon 3000-500 B.C.	Smaller, corner-notched projectile points Hopper mortars, pestles first appear Mountain sheep added to diet Basalt still preferred lithic material
Harder 500 B.C.-1300 A.D.	First housepit village First dogs Basal-notched and corner-notched projectile points Net sinkers
Piqunin A.D. 1300-1700	More housepits Smaller projectile points Harpoons Antelope missing from diet, but deer, elk, salmon are still present
Numipu A.D. 1700-1900	"Ethnographic Nez Perce culture" Horses in use Riverine settlements Trade goods Fishing/hunting/root gathering subsistence base

Source:
Leonhardy and Rice 1970

the Harder Phase (Schroedl 1971, 1973); villages tend to occur in association with what today are good fishing stations, and at the mouths of tributary streams. Local sequences from Hells Canyon (Caldwell and Mallory 1967; Randolph and Dahlstrom 1977; Warren, Sims and Pavesic 1968), the lower Salmon River (Butler 1962; Hill 1974; Ruebelman 1978), and other subareas of the Plateau fill in, but do not alter the major outlines described above.

One as-yet-unresolved chronological issue is the date of the "emergence" of the modern Plateau pattern, which includes winter residence in housepit villages along major rivers, development of specific projectile point styles, salmon fishing technology (including storage), and upland root gathering and hunting. Swanson (1962b) estimates the beginning of this pattern at around 1300 A.D., based on archaeological evidence of settlement pattern. Warren (1968), on the other hand, suggests that there was a "developmental continuum" in artifact styles from about 6,000 B.C. to the present. Salmon bones and fishing gear first appear in riverine sites by 6,000 B.C. (Aikens 1978:169); housepits have been discovered associated with Cascade Phase assemblages (Brauner 1976). Recent ethnographic and archaeological research suggests that Plateau peoples had settled in semi-sedentary villages by 4300 years ago, in response to the "intensification of plant exploitation" and development of storage systems (Ames and Marshall 1980:25). As mentioned above, specialized bison hunting techniques are not only associated with post-horse Nez Perce culture, but apparently have a long time depth throughout the Columbia Plateau, from about 8,700 years ago to the recent past (Butler 1971b; Schroedl 1973). Thus, depending upon which trait, or group of traits, one chooses, the Plateau pattern may have begun any time during the last 9,000 years.

The hunt for the "earliest housepit" continues, but the basic types of Plateau dwellings are reasonably well known. Semi-subterranean earth lodges, about 6 feet deep when new, and 10 to 40 feet in diameter, constitute the major type of single-family dwelling; rectangular or parallel-sided mat lodges, with or without a corresponding depression, constitute the other main type found archaeologically (Warren 1960). The mat lodges found in archaeological sites tend to be smaller than those reported ethnographically. Tipis and plank houses have been reported ethnographically, and by early Euro-American explorers, but Ray (1939) considers them to be relatively recent additions to Plateau material culture, resulting from contacts with the Plains. Evidence for them has not been reported in the archaeological literature.

Pit house remains have been reported from Hells Canyon, the lower Snake River, the lower Salmon River, McNary Reservoir, and in central Washington near Vantage and at Wenas Creek (Brauner 1976; Caldwell and Mallory 1967; Hill 1974; Leonhardy, Schroedl, Bense and Beckerman 1971; Nelson 1969; Nelson and Rice 1969; Osborne 1957; Spinden 1908; Swanson 1962b; Warren, Sims and Pavesic 1968). Mat lodges have been reported from central Washington and the lower Salmon River (Hill 1974; Warren 1968). In addition, stone-lined pits, 20 feet in diameter and 3 feet deep have been reported from Hells Canyon (Caldwell and Mallory 1967:17); Osborne (1957:158) calls smaller versions of such pits in northeastern Oregon "stone-lined burial cists," but it is possible the larger ones were dwellings.

Spinden (1908:179) describes a housepit 75 feet in diameter, in a Nez Perce village abandoned about 1875. Stryd (1971b) reports similar anomalously large housepits from the Fraser River in British Columbia; he states that they never occur alone, or at sites with less than 20 smaller (i.e., "normal")

housepits. In addition, they tend to occur at what appear to be favorable locations within the village, such as closer to water sources. Stryd suggests that such large structures may represent different functions (such as multiple family residence), relative rank of their occupants, or simply permanence versus transience of occupation.

Although Osborne (1957:10) states that there is no "village plan" in the Plateau, Warren (1960) describes three internal village patterns: houses may be clustered, in rows, or randomly distributed along the river bank. When data are given in the literature, most Plateau villages seem to occur on river terraces above the active floodplain (e.g., Caldwell and Mallory 1967; compare Knudson et al. 1981).

In contrast to the extensive ethnographic data on Nez Perce settlement pattern, virtually no archaeological data are available on prehistoric Plateau settlement pattern outside of the major watercourses. In part this is the result of the concentration of archaeological research in areas due to be inundated by large reservoirs. Hunting and gathering camps are expected to exist in the uplands, but few such camps have been located, and fewer still have been excavated (e.g., Gaarder 1967; Keeler 1973).

In fact, Keeler's "upland hunting camp" contains net sinkers and other notched cobbles in addition to Cascade and side-notched projectile points, and is situated at the confluence of a tributary with the North Fork of the Clearwater River (Keeler 1973). He infers that it was a "summer base camp" only on the basis of the hunting paraphernalia, although it exhibits recurrent use from Cascade times to about 1000 B.C., and also fits the "pattern" expected of year-round villages.

Although most ethnographies of Plateau peoples describe them as peace-loving, Smith (1975) believes he has found evidence that inter-group warfare required construction of defensive fortifications. Problematical rock structures are found on mesa tops in the western Plateau, but the absence of corroborating evidence from ethnographic or historical studies, or from other Plateau archaeological sites casts some doubt on Smith's interpretation.

Another one of the areas of uncertainty in Plateau prehistory is the time depth of salmon fishing as a subsistence method. Evidence of salmon fishing (salmon bones, fishing gear, or both) occurs in Hells Canyon, the Lower Snake River, and the Clearwater River area, often associated with faunal evidence of big game hunting (especially of mountain sheep and bison). For example, Warren, Sims and Pavesic (1968) report that both mountain sheep and salmon remains were numerous in their sites in Hells Canyon. Randolph and Dahlstrom (1977:15), on the other hand, found evidence that occupants of Bernard Creek Roskshelter in Hells Canyon used resident fish as much as or more than salmon, at least in early times. They found remains of trout, minnows, suckers, squawfish, chub, and chiselmouth along with salmon in layers below Mazama ash in that site.

Evidence for the prehistoric use of bison in the Plateau has been presented above (see also Butler 1962; Caldwell and Mallory 1967; Osborne 1957). Mountain sheep remains are found at sites throughout the Plateau, often associated with remains of bison, deer, elk, and antelope (Randolph and Dahlstrom 1977; Schroedl 1973; Swanson 1962b; Warren 1968; Warren, Sims and Pavesic 1968). Grinding tools, used to process roots and seeds, are found

generally in sites dating to the beginning of the Cascade Phase (Bense 1972; Leonhardy and Rice 1970). Thus, a diversified subsistence economy is documented throughout the prehistoric period in the Plateau.

Despite Spinden's assertion (1908:184) that obsidian was the "most prized" lithic material to the Nez Perce, archaeological sites in Nez Perce "territory" contain mostly other lithic materials. For example, of 5154 pieces of lithic detritus at Weis Rockshelter, on the lower Salmon River, only 7 were obsidian; the rest were various types of cryptocrystalline silica (Butler 1962). Hill (1974) reports only one obsidian artifact from his work on the lower Salmon River; Caldwell and Mallory (1967) report little obsidian from Hells Canyon.

In contrast, Boreson (1979) found that 54% of the lithic materials from 10-VY-165 on the South Fork of the Salmon River were obsidian; 37% were basalt, and only 8% chalcedony. Three kinds of obsidian, and three kinds of ignimbrite were present in materials from Bernard Creek Rockshelter (Randolph and Dahlstrom 1977).

Obsidian was available from at least 40 sources in southern Idaho, southeastern Oregon, and northwestern Wyoming (Gallagher, Sappington and Wylie 1979). Basalt usually was available locally, as was chalcedony. Warren, Wilkenson and Pavesic (1971) report a large basalt quarry at Midvale, Idaho; artifacts from associated camps are more similar to Great Basin types than to those of the Plateau. Obsidian materials from Caldwell and Mallory's Hells Canyon studies came primarily from only two sites, and tend to be used for late period projectile point styles (Caldwell and Mallory 1967:Table 6).

Problems of Identifying the Plateau Pattern

A word is in order here about the use of projectile point morphology to distinguish either chronological or ethnic entities on the Plateau. As Leonhardy (1968) points out, such styles often do not help to distinguish contemporary cultural groups, so it is unlikely they will be useful in distinguishing prehistoric cultural groups (see Figure 8). Nonetheless, there seems to be a more-or-less regular chronological sequence of styles in the Plateau, beginning with large lanceolate forms, continuing with large side-notched forms, and ending with smaller stemmed and notched forms of the historic period. In addition, there are occasional finds of large, fluted forms in very early contexts.

As discussed above, lanceolate (i.e., Cascade) points are the "hallmark" of the Cascade Phase, and have been attributed to carriers of the Old Cordilleran Culture, associated with the forested environments of the early northwest. Similarly, side-notched points are sometimes assumed to be evidence of "influences" from the Great Basin (Swanson 1962a), although the addition of this form to the toolkit does not seem to be associated with any other cultural changes (Bense 1973; Schroedl 1973; but see Randolph and Dahlstrom 1977).

Swanson (1965:26) believes that the presence of "Plateau villages" is a better argument for the presence of Plateau peoples in an area than is the presence of certain styles of portable artifacts. Butler (1962) supports this view, and later points out that "the archaeological remains representing the various activities of...Plateau peoples might be difficult to recognize as comprising a single culture" (Butler 1965:8). Furthermore, even the presence of pithouse villages does not necessarily entail the "Plateau" pattern of winter

sedentism (Ames and Marshall 1980:26). Nor does riverine settlement necessarily entail riverine--that is, aquatic--subsistence emphasis (Swanson 1962b:84). Animals use rivers too, and graze on nearby grass-covered slopes. Thus, not all villages located in river valleys need be in fact "fishing stations." Ames and Marshall (1980:44) emphasize the "relative paucity of fishing gear" found in Plateau archaeological sites, and suggest that this may reflect the "relative unimportance of fishing" to prehistoric peoples. Earlier, Marshall (1977) emphasized proximity to early spring vegetable resources as a major factor in selecting winter village locations.

A further difficulty facing interpretation of river-side settlements is the possible effect of local or regional geomorphic processes (see Chapter Two). For example, the lower Snake River shows a settlement pattern in space and time which Hammett (1977:113-114) believes results more from natural than from cultural factors:

The periods of apparent heaviest occupation...happen to be contemporaneous with the two major periods of alluvial stability and soil development. The apparent hiatus in the occupation corresponds to a period of active alluvial scouring, bank cutting, and deposition. Changes in the relative dominance of different geological processes influence the chances for survival of occupation layers as well as their chances of discovery.

Functional interpretation of artifacts can be misleading, too. Edge-ground cobbles were assumed to be related to root-processing, until Crabtree and Swanson (1968) showed that such cobbles could be produced in the process of detaching blades from a core during manufacture of flaked stone tools. Because Cascade points are made of blades, and edge-ground cobbles are associated with Cascade points, it is likely that the cobbles are part of a flintknapper's toolkit, not that of a root processor.

Both lanceolate and side-notched projectile points are assumed to be related to big-game hunting, but in the Plateau the target species are almost always modern. Swanson (1972:175) emphasizes the long time depth of such point types in high elevation archaeological sites. He suggests that such areas may have retained their relatively lush vegetation (and hence, rich faunal resources) while surrounding areas were drying up with the mid-Holocene climatic changes. This idea is examined in more detail below.

Summary

The Plateau contains evidence of a cultural sequence covering about 12,000 years, during which time subsistence activities became more specialized, and perhaps oriented toward fishing. The settlement pattern may reflect similar specialization. Toolkits added more kinds of tools, and morphologies of specific tools changed. House types remained more or less constant, from their earliest occurrence to historic times.

Numerous unanswered questions remain in Plateau prehistory. These questions relate to the date of "emergence" of the Plateau pattern, the nature and distribution of prehistoric non-riverine settlements, the nature of inter- and intra-regional cultural contacts, and the effect of environmental change on human populations. The study area may hold the answers to some of these questions.

Great Basin Prehistory

The concept of the Desert Culture was developed by archaeologists as a response to ethnographers of the desert west, who assumed that the cultural patterns they saw were the result of "degenerating" from an earlier pattern, or of influences from outside of this "peripheral" area (Jennings and Norbeck 1955). Archaeologists therefore sought to demonstrate that the ethnographic pattern of seed gathering, seasonal movement, and diversified adaptation to an arid environment had a long history in the Great Basin, in spite of climatic change and the brief adoption of horticulture by some peoples in northeastern Utah. As archaeologists saw it, the Desert Culture was the original culture of the arid west; the persistence of seed-grinding tools and basketry argued for the persistence of the "desert culture" way of life until historic times.

Jennings himself later pointed out that the "success" of this model of prehistoric reality was almost too great (Jennings 1973). By adopting it so readily, some archaeologists were blinded to the very real temporal and areal differences in local prehistoric cultures, and to wide variations in local adaptations to specific environments. Like the models for the Plateau, however, the Desert Culture model stimulated substantial archaeological research for nearly 25 years (see also Swanson 1974).

When Great Basin cultural chronology is based on data more substantial than projectile point morphology (e.g., Hester 1973), it is based on ordering the environmental changes to which "desert" peoples were assumed to have adapted. As in the Plateau, the climatic sequence of Antevs (1948, 1955) provided the initial basis for such ordering. In the Great Basin, however, archaeological research concentrated on caves and rockshelters on the edges of now dry Pleistocene lakes, rather than on open village sites along major rivers. Neither type of site alone gives a complete picture of the total seasonal round of its inhabitants, but caves and rockshelters usually contain a wider variety of perishable materials, and tend to contain sensitive stratigraphic sequences of sediments. Accordingly, much of the following discussion focuses on sedimentary (and inferred climatic) sequences for selected areas of the northern Great Basin, particularly those occupied by Northern Shoshoni in historic times.

On the basis of sediment type and enclosed faunal assemblages, Gruhn (1961) discerned five strata at Wilson Butte Cave in south-central Idaho. Stratum E, the earliest, contained horse and camel bones; Stratum D, immediately following, also contained bison bones, and was correlated with the Anathermal period of Antevs. Horse and camel disappear in later strata, but bison continue until the upper-most layers, which Gruhn believes correspond to historic Northern Shoshoni populations. She dates this final assemblage at between A.D. 1300 and A.D. 1750 (Gruhn 1961:13, 45-46).

Caves and rockshelters from the Birch Creek Valley and from the Salmon River Canyon within the study area contain the most sensitive stratigraphic sequences yet studied in eastern Idaho. From two rockshelters near Shoup, Swanson and Sneed (1966:12-13) defined eight climatic periods, correlated with glacial and interglacial episodes in the northern Rocky Mountains (Table 15). From rockshelters in the Birch Creek Valley, Swanson (1972:52-63) defined seven climatic periods (Table 16). As discussed in Chapter 2, above, the effects of these documented environmental changes can be expected to be felt within the

TABLE 15
CLIMATIC SEQUENCE AT SHOUP ROCKSHELTERS

Period	Age	Remarks
I	? to 10,460 B.C.	Earliest deposits probably date to ca. 12,000-13,000 years ago
II	? to 8,500 B.C.	Pinedale interstadial (?)
III	? to 5,200 B.C.	"Anathermal" (?); includes a period of soil formation during the last 1000 years, and a period of rockfall
IV	5200-2780 B.C.	Early "Altithermal;" last 925 years includes a period of soil formation
V	2780-1200 B.C.	Late "Altithermal"
VI	1200 B.C.-1300 A.D.	"Medithermal;" increased rockfall
VII	ca. A.D. 1300	Silt layer; perhaps correlated with late 13th century drought, widespread in western U.S.
VIII	A.D. 1300 to present	Increased rockfall; perhaps correlated with neoglacial episode (Gannett Peak)

Source:
Swanson and Sneed 1966

TABLE 16
CLIMATIC SEQUENCE AT BIRCH CREEK

Period	Age	Remarks
I	? to 10,500 B.C.	Includes volcanic ash from Glacier Peak, Wash.
IIa	10,500-10,000 B.C.	Layer of roof fall
II	10,000-5,200 B.C.	Cool and moist
III	5200-3850 B.C.	Aeolian silts
IV	3850-1450 B.C.	Abrupt change from Period III sediments; cool and moist, like Period II
V	950 B.C.-1250 A.D.	Semi-arid
VI	A.D. 1250-1850	More moist than Period V, less moist than Period IV

Source:
Swanson 1972

TABLE 17
CULTURAL SEQUENCE AT BIRCH CREEK

Period	Phase Name	Dates
I	Birch Creek	9,000 to 5,200 B.C.
II	Bitterroot	5,200 to 1450 B.C.
III	Beaverhead	1450 to 950 B.C.
IV	Blue Dome	950 B.C. to A.D. 1250
V	Lemhi	A.D. 1250 to A.D. 1850

Source: Swanson 1972

Note: These dates are corrected from earlier publications; compare Swanson and Bryan 1964; Swanson, Butler and Bonnicksen 1964.

Salmon River Mountains, but the specific nature of these effects on human cultures in the study area cannot now be determined. Subsurface data from archaeological sites and natural contexts in the study area are needed to make these determinations.

The cultural sequence at Birch Creek is defined on the basis of projectile point styles (Swanson 1972). Birch Creek points define the earliest, or Birch Creek, Phase; Bitterroot side-notch points define the following Bitterroot Phase; Beaverhead points define the later Beaverhead Phase; and a variety of small side-notched points define the most recent, or Lemhi, Phase. Swanson believes that this cultural sequence is evidence for continuous occupation of the Birch Creek Valley by peoples whose historic manifestation was Northern Shoshoni (Swanson 1972), although he admits that the Beaverhead "point" may in fact be a preform, on which the smaller side-notched points were made.

As Lowie (1909) reports, the modern Shoshoni of the Lemhi Valley have no migration myths; they claim to have originated in their historic location. Thus, ethnographic data tend to support Swanson's view. Gruhn (1961), however, believes that data from Wilson Butte Cave show at least changing cultural influences through time, if not actual population replacements. On the basis of artifact styles, faunal remains, and inferred environmental changes, she postulates a series of intercultural relationships between residents of Wilson Butte Cave and populations from farther south in the Great Basin, and farther east in the Great Plains (Gruhn 1961:149). In addition, she suggests that the Shoshoni did not arrive in the northern Great Basin until around 1300 A.D. (Gruhn 1961:148).

Problems of Identifying the Great Basin Pattern

The issue of the time the Shoshoni "arrived" in their historic homeland may be more related to differences in scholarly approach than to differences in objective reality (compare the issue of the "true" nature of the "tukudeka," above). Certain linguistic evidence, however, suggests that Numic speakers (including Shoshoni, Paiute, and Comanche) separated from the larger Uto-Aztekan language family and spread northwards from a center around the Arizona-Mexico border. By means of glottochronology (a method of estimating the temporal distance between related languages), linguists have placed the date of this northward radiation at around 1000 A.D. (Goss 1968; Hopkins 1968; Lamb 1958; Miller 1966; Perry 1980; see also Wright 1978).

At about the same time, the "Fremont" culture, based on horticulture rather than hunting and gathering, appeared in northeastern Utah (Aikens 1966, 1967, 1978; Gunnerson 1969; Lipe 1978; Madsen and Berry 1975; Schroeder 1963). This culture disappeared a few centuries later. The origin and ultimate destiny of the Fremont peoples consumes considerable space in the literature of the Great Basin; their distinctive artifacts (including pottery and rock art styles) occur in southeastern Idaho and the northwestern Plains, in areas used by the historic Northern Shoshoni (Butler 1981a, b, c; Keyser 1975; Plew 1979). In fact, Butler (1981a) states that the later phases at both Wilson Butte Cave and the Birch Creek Valley rockshelters are Fremont rather than Shoshoni, and are more closely related to the Plains than to the Great Basin. Thus, in the Great Basin as in the Plateau, the question of how far back in time one can trace the ethnographic cultural pattern still needs to be resolved.

Although seed-grinding tools are present in some archaeological assemblages from eastern Idaho, the major evidence for subsistence patterns comes from faunal remains. Bison, mountain sheep, elk, deer, and antelope occur in nearly all of the archaeological sites, but bison and mountain sheep are the most numerous. Use of these large game animals persists from the earliest levels to historic times at sites including Wilson Butte Cave, the Wasden site, and Birch Creek (bison), and at Sandwich Shelter, Weston Canyon Rockshelter, Birch Creek, and the Meadow Canyon sites (mountain sheep) (Butler 1968; Delisio 1971; Gruhn 1961; Marwitt, Fry and Adovasio 1971; Ranere 1971; Swanson 1972).

Archaeological sites and/or strata from the Altithermal period contain twice as many mountain sheep remains, and fewer bison remains, as do either earlier or later components (Swanson 1972:193). Because sites associated with bison tend to lie between 5,000 and 6,000 feet elevation, and those associated with mountain sheep tend to occur above 7,000 feet, Swanson suggests that bison were less frequent in eastern Idaho during the Altithermal, and that sheep moved lower in response to altitudinal depression of their habitats. During other times, mountain sheep hunting sites are associated with spruce/fir and Douglas fir zones, and specifically with the "natural parks" which occur in these upper elevation vegetation zones (Butler 1978:28).

There may be a tendency for side-notched projectile points to be associated with bison remains, and for corner-notched points to be associated with mountain sheep remains (Swanson 1972:194). Whether this represents a difference in cultural affiliation, or simply a difference in hafting technique is not known (see Lowie 1909; Spinden 1908).

Large bison herds are not reported in Idaho after 1840, but Butler excavated a bison jump site near Challis, Idaho, dated by trade beads at between 1860 and 1880 (Butler 1971a:13). Quill Cave, just upslope, contained both bison and mountain sheep bones; it was dated about 1300 A.D. In a series of papers over the last decade, Butler has suggested that such large game, particularly bison, played a very important role in northern Great Basin subsistence throughout the Holocene (Butler 1971a, b, c; 1976; 1978a). Bison jumps of the classic Plains type have been identified in southwest Idaho (Agenbroad 1976), and southeast of the Salmon River Mountains (Butler 1978b). Those in southwestern Idaho have seen recurrent use for nearly 7,000 years (Agenbroad 1976:5).

As discussed earlier in this Chapter, historic Northern Shoshoni depended on camas, resident and anadromous fish, and small game in addition to large game. Prehistoric subsistence patterns cannot be so readily documented, however, for no "camas camps" or "fishing stations" have been investigated in Shoshoni "territory." The Dancing Cat site in Stanley Basin is in a favorable location for fishing, but neither fish bones nor fishing tools were recovered (O'Connor 1974). Only a cache of fluted projectile points, interpreted as being related to similar types on the Plains, has been recovered from Camas Prairie, an historic camas gathering and trading center (Butler 1963; see also Knudson and Leonhardy 1978). Until sites containing tools and biotic remains associated with fishing and camas gathering are located and studied, ethnographic models such as those by Franzen (1978) and Gallagher (1979) cannot be documented for the prehistoric past. At any rate, it appears that Northern Shoshoni subsistence patterns in central Idaho were indeed much more like those

of their Sahaptin neighbors to the north than those of their Numic-speaking cousins to the south. Further archaeological survey and excavation in the Salmon River Mountains and adjacent areas may cast more light on this important puzzle of central Idaho prehistory.

As for settlement patterns in prehistoric times, the archaeological emphasis on caves and rockshelters has revealed little about the uses of other kinds of landforms, or about sites in the hinterlands away from rivers or lake shores. Two studies in Idaho, however, contain data on non-lakeside environments.

The early reconnaissance study of the Birch Creek Valley located 136 sites, of which 54 were open camps, 77 were rockshelters, 1 was interpreted as a tipi ring, and 4 consisted of circular rock structures, interpreted as possible hunting blinds (Swanson and Bryan 1964:2-3). Rock art sites, primarily pictographs, but including both pictographs and petroglyphs, are reported from the Birch Creek Valley (Boreson 1980; Swanson and Sneed 1964).

Recent surveys on Bureau of Land Management lands southeast of the Salmon River Mountains located hunting blinds, tipi rings, housepits, caves, rockshelters, quarries, rock art panels, bison jumps, and open surface scatters of lithic debris (Butler 1978b:55). Open sites were the most numerous. No intensive studies have yet been conducted on these sites.

Studies of the effects of severe climatic change on human populations have had varying results. Swanson, for example, is a proponent of the idea that high elevation areas provided "refuges" for human populations from the lowlands, whose resources were literally drying up during the Altithermal (Swanson 1970, 1972; Swanson and Sneed 1966; Swanson et al. 1964). Research in other parts of the Great Basin has supported this view, at least in part (e.g., Fagan 1974; Swanson 1972). Thus, the apparent Altithermal "hiatus" represents abandonment of the lowlands only, not the entire area.

Other scholars emphasize the importance of local resources, and point out that water, food, and shelter were always available somewhere, even during the most arid of times (Fry and Adovasio 1976; Weide 1976). Hence, even the lowlands need not have been "depopulated" at all; archaeologists simply are not looking in the right places for Altithermal-age sites. It may be possible, as Davis (1966:151) suggests, that "each drainage system could have its own prehistory," an idea with obvious implications for the Salmon River Mountains.

Lowie (1909:184) asserted that the Shoshoni had never used pithouses, but both housepits and tipi rings are found archaeologically in Shoshoni "territory," along the Salmon River between Challis and Salmon, Idaho; they seem to become more numerous as one moves north along the east side of the Salmon River Mountains (Butler 1978b; Swanson 1970; Swanson et al. 1969). Tipi rings have been identified in various parts of eastern and southern Idaho, as well as in the Middle Fork Salmon River Valley (Agenbroad 1976; Ranere et al. 1969; Swanson 1958; Swanson and Bryan 1964; Swanson et al. 1964). Furthermore, housepits are found in northern Nevada dated between 2,500 and 1,000 B.C., and followed in time by "flimsy saucer-floored structures resembling the brush wickiups of the historic Paiutes" (Aikens 1978:159).

Similarly, Steward (1938:238) asserted that the Shoshoni did not use sweatlodges, but a stone circle 1.5 meters in diameter associated with the Dancing Cat site in Stanley Basin was interpreted as just such a structure (O'Connor 1974:37). Other stone features have been interpreted as hunting blinds (e.g., Swanson and Bryan 1964:1), and one, situated high on a talus slope along the East Fork of the Salmon River, was interpreted as being a dwelling (Butler 1978b:73). The latter structure measured 9.5 feet in diameter by 4.5 feet deep, and contained organic materials dated at between 1,300 and 1,500 B.C.

House types of the problematical Fremont people include both circular and rectangular pithouses, some stone lined. In addition, tipi rings, coursed adobe structures, and small pits (unlined or lined with stones) are reported from Fremont sites (Aikens 1966, 1967; Gunnerson 1969).

As discussed above, projectile point morphology has been used to discern both cultural and chronological groupings in the Great Basin (Hester 1973). Although the effectiveness of using morphology alone, without analysis of manufacturing technology, lithic material, or other characteristics is debatable (see, e.g., Knudson 1973), the ubiquitous Desert side-notched projectile point seems to be a relatively good time marker in the northern Great Basin. This style appeared in eastern California around 1300 A.D., and its use spread outward throughout the desert west (Baumhoff and Byrne 1959). Further, Corliss (1972) claims that regardless of type, the neck-widths of Plateau projectile points are consistently 2 mm. smaller than those from the Great Basin. This difference persists for about 7,000 years. He cites this finding as support for the *in situ* development of cultures in both areas, concluding that there have been "no major or significant migrations" during this time (Corliss 1972:25). His findings thus support Swanson's interpretation of the various types of side-notched forms from eastern Idaho, whose forms "intergrade so well that they constitute one historical type, comparable to the Cascade point" (Swanson 1962:155). In general, the Great Basin exhibits the same cultural sequence as the Plateau, with large lanceolate forms, sometimes fluted, being early, followed by large side-notched forms, and then smaller basal-, corner-, and side-notched forms.

Lithic materials used for flaked stone tools include chalcedony, ignimbrite, and obsidian. Swanson (1972:145) states that the spatial distribution of these materials parallels that of historic "mountain Shoshoni" groups, and uses the "dominance of chalcedony during the Altithermal" as support for his idea of a "contraction of the population into the Salmon River system" during this time. Both cryptocrystalline and volcanic materials occur in central and southern Idaho sites, but chalcedony is more common at Shoup rockshelters, the Dancing Cat site, Big Camas Prairie, Redfish Overhang, Sandwich Shelter, and the Meadow Canyon sites (Butler 1963:223; Marwitt, Fry and Adovasio 1971:31; O'Connor 1974; Ranere 1971:24-34, 40; Sargeant 1973:64; Swanson and Sneed 1966:32).

By contrast, obsidian was the most common material at Weston Canyon, and for the cache of Haskett points and preforms from Redfish Overhang, and ignimbrite was the most common material at Willow Creek (Delisio 1971:52; Gallagher, Sappington and Wylie 1979; Powers 1969:29). Obsidian is reported from a site in the Sawtooth Mountains (Bowers 1964), and from Fremont sites in northeastern Utah (Aikens 1966:66). Relative percentages of materials change through time at the bison jumps in southwestern Idaho with earlier point types

being mostly cryptocrystalline, and later ones mostly obsidian (Agenbroad 1976). Functional differences between materials are inferred by Gruhn for Wilson Butte Cave; chalcedony was used to make scrapers, whereas obsidian and ignimbrite were used for projectile points (Gruhn 1961:124). Chalcedony was sometimes heat treated (Aikens 1966; Ranere 1971).

Summary

Big game hunting, rather than seed collecting, seems to be a constant aspect of northern Great Basin subsistence pattern during the Holocene in Idaho. Use of caves and rockshelters as dwellings is documented from 12,000 years ago to the recent past. Other house types found archaeologically are more varied than ethnographic sources would suggest. Northern Great Basin peoples seem to have been familiar with both grassland and high elevation environments, and there is some support for the idea that higher elevations may have been "refuges" during the Altithermal.

Because several scholars have suggested that northern Great Basin peoples were influenced by the cultures of the Plains in early, as well as recent, times, it is helpful to include a brief review of northwestern Plains prehistory here. The following section describes Plains chronology, subsistence/settlement patterns, and artifact types that might affect the interpretation of the archaeological resources in central Idaho.

Plains Prehistory

Historic Shoshoni and Nez Perce both hunted bison east of the Continental Divide; the existence of several well-worn trails across the Rockies attests to a reasonably long familiarity with resources--and perhaps cultures--on the Plains. In addition, several scholars have reported either Plains influences or Plains peoples in Idaho at various times during the prehistoric past (e.g., Butler 1981a, b, c; Gruhn 1961; Husted 1969; Kundson and Leonhardy 1978; Mulloy 1958; Sharrock 1966).

The Great Plains area is best known for its early big-game hunting cultures, which hunted extinct forms of bison, and for its late prehistoric and historic horse-mounted Indians, who hunted modern forms of bison. Mulloy (1958) has divided the time between these two cultures into four periods, based on cross-dating of artifacts throughout the northwestern Plains (Table 18).

Although Mulloy does not mention it himself, much discussion has ensued since publication of his sequence about the apparent Altithermal "hiatus" between 4,000 and 1,500 B.C. (Mulloy 1958:219-221). Recent research suggests that this hiatus may have been more a function of the lack of adequately cross-dated sites than a factual description of prehistoric population responses to the Altithermal, for sites do exist during this period, especially at high elevations (Frison 1976; Husted 1969; Reeves 1973; Sharrock 1966; Wedel 1978).

TABLE 18
CULTURAL SEQUENCE ON THE NORTHWESTERN PLAINS

Period/Dates	Diagnostic Artifacts
Early Prehistoric 11,000-4000 B.C.	None listed
Early Middle Prehistoric 1500 B.C.-0 A.D.	Lanceolate projectile points with concave bases Lanceolate projectile points with flat bases Lanceolate projectile points with convex bases Projectile Points with large lateral notches or basalar constrictions and concave or convex bases Gravers Broad, ovoid to subrectangular bone game counters with one, two, or three incised lines
Late Middle Prehistoric 0-500 A.D.	Corner-notched projectile points with convex or concave bases Mano-like stones with one edge ground smooth Gravers
Late Prehistoric 500-1800 A.D.	Small, traingular projectile points without notch Small, side-notched projectile points with flat or concave bases Small, side-notched projectile points with base notch Drills with expanded bases Irregular grinding stones Battered hammer stones Wide, flat, rectangular shaft smoothers Long, slender, flat knapping tools of antler or bone Cylindrical sections of antler Scapula scrapers

Source:
Mulloy 1958

Projectile point styles usually are used as time markers throughout Plains prehistory, because of the assumed emphasis on big-game hunting (e.g., Irwin-Williams et al. 1973; Kehoe 1966). The general pattern on the Plains is for large, lanceolate forms to be early, followed by notched forms, which gradually become smaller until historic times. Fluted points are well known from early sites, and a variety of stemmed, un-notched forms appear along with the earliest notched forms; corner notching seems to be earlier than side-notching, in contrast to the situation on the Plateau (Mulloy 1958; Sharrock 1966).

Plains Indians have been perceived as being dependent on big game, but this perception may not be entirely accurate either for historic or prehistoric Plains dwellers. As Wedel (1978:187) points out,

the semiarid western steppe has always been primarily an area of hunting and gathering subsistence economies in which human settlement and activities were concentrated along the stream valleys and around the springs and waterholes where the game herds also tended to concentrate.

Frison suggests that "small groups had established a carefully scheduled hunting-and-gathering subsistence base by around 7500 B.C." and that such peoples exploited "the entire spectrum of economic resources from the basin floor to timberline and possibly even the alpine areas" during this and succeeding periods (Frison 1976:159, 166). Contacts with or influences from peoples in the Great Basin and on the Pacific Coast are suggested by the occurrence of coastal shells at Ghost Cave, and the entire economic system of the Late Middle Prehistoric period on the Plains (Mulloy 1958:112, 213).

Mulloy believes that mountain sheep "probably were not of great economic importance" to prehistoric Plains peoples, but mountain sheep remains are numerous at archaeological sites such as Pine Spring, Mummy Cave, Medicine Creek Lodge, and the Lookingbill Site throughout the Holocene, with or without evidence of bison hunting (Aikens 1966; Frison 1976; Mulloy 1958; Sharrock 1966; Wedel 1978). Frison (1978) reports several high-elevation mountain sheep traps, complete with drive lines, circling pens, and corrals, in the Wyoming Rockies.

Communal hunting of bison, and possibly of mountain sheep, is documented since at least Altithermal times, although Kehoe (1966) believes this pattern to have started quite late (Frison 1978; Reeves 1973; Reher 1977). As Schroedl (1973) pointed out for the Columbia Plateau, the adoption of communal hunting strategies need not involve either change in projectile point styles or any additions to the portable toolkit. Rather, it depends only upon the cultural perception of an opportunity in the environment: enough game, enough people, and the presence of natural "traps" (Marshall 1977; Reeves 1978; Swanson 1972). In fact, use of pounds or pens may be "feasible only in a partially wooded country," as Hornaday (1887:478) suggests, and the "typical" Plains bison drive may actually be more difficult on horseback than on foot (Arthur 1978:242; but see Boller 1972).

Dillehay notes two periods of a relative absence of bison in the southern Plains, from about 6,000 B.C. to 2,500 B.C. and again from A.D. 500 to A.D. 1300 (Dillehay 1974). He suggests that these periods may represent a combination of actual decreases in the size of the bison population, and a shift in the geographic distribution of bison populations. If these shifts

were toward the parkland environments on the "hilly flanks" of the Plains, one would expect to find archaeological sites there with evidence of bison use during those periods. Reeves (1973:1237) finds just such sites in the northwestern Plains, dated during the "Altithermal hiatus" and distributed within or on the edges of the Rockies.

Despite the persistence of big-game hunting, seed-grinding tools are found both in caves and open sites in the northwest Plains, dating from at least 8,000 years ago (Frison 1976:152). Sharrock (1966:174) suggests that food gathering did not replace big game hunting as a way of life, but simply was added to the subsistence base. It seems that the Plains hunters, like so many other "hunting" cultures, depended on a wide variety of foodstuffs and subsistence techniques.

Plains settlements seem to be located near subsistence or lithic material resources. At least on the southern Plains, settlement locations are characterized by stability through time (Wendorf and Hester 1962). In southwest Wyoming, camps may be on "the bleakest, most windswept ridges in the...area," but such camps are always associated with a good chert source (Sharrock 1966:147). Sites in the Big Horn Canyon studied by Husted (1969:83) were "clustered where there was access to the river and fords." Rominger (1979, quoted in Wylie 1979b) found an amazing variety of high elevation site types in southwestern Montana, including settlements, big game kill sites and hunting blinds, quarries and workshops, rock art, and "ritual" sites; Johnson (1971) suggests that it is sites of Altithermal age that are at high elevation, and that recent sites are found in river valleys. Further, Johnson feels that the observed change in settlement pattern represents actual population replacement by the Flathead, a Plateau people (1971:87).

The nature and distribution of "tipi ring" sites in the northwestern Plains has been the subject of considerable discussion. Mulloy (1958:212) states that the "vast bulk" of these sites have "nothing whatever to do with tipis or any other kind of habitation site," although numerous later writers assert that most (but not all) of these circular patterns of stones were, in fact, used to hold down the covers of skin tipis (Kehoe 1960; Keyser 1979; Malouf 1961; Quigg 1979; Sharrock 1966). As evidence for their being dwellings, Malouf (1961:381) states that they cluster "along main routes of travel and near water, fuel, and good hunting areas; in high elevations, they tend to cluster along ridges and saddles." The distribution of such features corresponds to that of historic Northern Shoshoni peoples, but extends farther to the north and east; Plateau pestles have been found in tipi ring sites on the Missouri River, suggesting occupation by people from west of the Continental Divide (Malouf 1961:381). Tipi rings with and without hearths have been located at over 10,000 feet elevation in the Big Horn Mountains and the Colorado Front Range (Bentzen 1963; Grey 1963; Husted 1963; all cited in Sharrock 1966).

An "ordinary" Shoshoni tipi required the hides of 8 to 12 bison; larger tipis could use from 20 to 25 hides (Hornaday 1887:505). Once the skin tipi was invented (or adopted), therefore, a constant supply of bison hides was necessary. Evidence of increased efforts to acquire such hides either by hunting or by trade can thus be expected in archaeological sites associated with the tipi-using cultures of the west, once the time depth of tipi use is established. Aside from caves and rockshelters, no other types of dwellings have been described for Plains peoples.

Lithic materials used for flaked stone tools vary through time and space on the Plains. Local chert and quartzite were used by the earliest big-game hunters in southeastern Wyoming, and cherts seem to be preferred materials in recent times as well (Irwin-Williams et al. 1973; Kehoe 1966). Sharrock noted increasing use of obsidian through time in his southwestern Wyoming sites, even in those sites associated with chert quarries (Sharrock 1966:69). In addition, post-Altithermal levels contained projectile points reminiscent of Plateau types, and grinding stones, pottery, and projectile points similar to those in the Great Basin (Sharrock 1966:24, 58). Clearly, inter-cultural contacts were occurring throughout this great "synapse" connecting the Plains with areas to the west (Husted 1969; Keyser 1975; Keyser and Knight 1976; Mulloy 1958; Plew 1979; Sharrock 1966).

To summarize the prehistoric patterns on the northwestern Plains, peoples seem to have emphasized big-game hunting, but they used a variety of local faunal and floral resources as circumstances allowed. Bison and mountain sheep were staples throughout the Holocene, but seed-grinding tools were used as early as 8,000 years ago. Settlements were in river valleys, on high-elevation ridges and saddles, and associated with useful resources wherever they might occur. Tool types changes through time, as did lithic materials. There is some evidence that settlement pattern changed through time, either in response to environmental changes or to population movements. Communal bison hunting, and perhaps mountain sheep hunting, is documented both before and after acquisition of the horse.

IMPLICATIONS FOR CULTURAL RESOURCES IN THE STUDY AREA

Previous studies of human activities in central Idaho and surrounding areas suggest that both prehistoric and historic human uses can be considered in four major, interrelated categories: settlement, resource exploitation, transportation, and inter-cultural contact. The first three are dependent upon the nature of the land and its resources, as well as upon cultural, social, and political patterns shared within a cultural group. The last depends primarily upon human patterns, but is related not only to the land as a provider of resources, but as it affects the choice of travel routes.

The land influences settlement through its topography; the distribution of water, minerals and rocks, and soils; and its response to climatic changes and local geomorphic events. Clearly also, the nature and distribution of biotic resources on the land will affect the nature and distribution of both permanent and temporary settlements. The land and its resources provide a raison d'etre for human activities within the study area, and the ease of gaining access to these entities will be an important determinant of the intensity of resource use. Thus, the design of transportation systems is related to the land as well as to human technology and to human perceptions of the area as containing useful resources.

Patterns of resource use, and the variability of such patterns across ethnic boundaries, will affect inter-cultural relationships through time and space. Mutual cross-utilization of resources (Walker 1967) leads to a very different kind of cultural contact than does competition for resources

(Hardesty 1980), and both of these patterns differ from contact stimulated by exploitation of one resource at the expense of another, by the same or by different cultural groups (e.g., mineral extraction vs. fishing, or grazing vs. camas harvesting). Conflict over appropriate uses of resources, still occurring today, is an important feature of past human perceptions of central Idaho, and may have shaped the nature of inter-cultural contacts throughout the Holocene.

This chapter has outlined historic and prehistoric uses of the lands and resources of central Idaho. The following brief sections describe certain broad expectations about the cultural resources of the study area, based on the information presented earlier.

Settlement

Permanent human settlement will occur where (1) the topography is suitable, (2) the nature and distribution of mineral, faunal, and floral resources justifies long-term residence, and (3) people desire to remain in permanent settlements. For the prehistoric period, this means that settlements usually will be located on gentle slopes, or in caves and rockshelters; near a water source (including hot and cold springs); and where fuel and building materials are available. Location near a suitable lithic material source may be desirable, but not necessary since such resources may be obtained through trade and travel. Location near hydrologic features such as riffles, rapids, and pools where fish may be procured, or at a vegetation ecotone where a variety of biotic communities are easily accessible may be important. Location of settlements may or may not change with the seasons; specific locations may be used continuously over thousands of years, or recurrently over a short or long time. Thus, a "permanent settlement" may be used either every year or all year.

Size of settlements can be expected to vary with the nature of kinship ties and other social factors, as well as with the nature of biotic and other land-based resources just listed. Location with respect to major transportation routes need not be precise, nor involve more elaborate systems than foot or horse paths, since few bulky items required movement into or out of the settlement. Because of the actions of local factors such as fires, floods, and slides, and of such larger-scale factors as climatic change, the location of prehistoric settlements cannot be expected to remain constant through time. In addition, these natural events may have masked or obliterated evidence of prehistoric settlements, and thus the accurate interpretation of evidence for the entire span of prehistoric settlement in the study area cannot be assured.

For the historic period, settlements can be expected to occur on gentle slopes, but not usually in caves or rockshelters (although certain "hermits" and early settlers are known to have used such landforms). The existence of appropriate floral resources, especially forage for domestic animals, and soils suitable for growing foodstuffs may be important determinants of settlement location, as may the local availability of economically valuable mineral species (e.g., gold).

Location with respect to transportation systems is more critical for historical settlements, because of the need to transport foodstuffs, farm animals, building materials, and machinery to and from the settlement. Transportation systems will be more complex during the historic period, because of the need to transport bulky and/or heavy items.

Size of settlement usually is limited to single households, composed of one or a few persons, except in highly favorable situations (such as mining camps). Changes in the locations of settlements through time can be expected in response to resource depletion, and to outside economic or social factors such as the price of gold or interest in outdoor recreation. Not all historic settlements can be expected to be documented in contemporary written records, and the number and stability of such settlements can be expected to vary with changes in the economic or political situation outside of central Idaho.

Resource Exploitation

The pattern of resource exploitation, and the kind of resources exploited, will vary between cultural groups, and through time within cultural groups. Seasonal or ephemeral camps of hunting and gathering peoples will occur in association with technological or subsistence resources such as flakable stone, camas and other storable vegetable foods, and with big game ranges. In addition, structures and features such as hunting blinds, big game drive lanes or pens, rock art sites, and quarries can occur with or without evidence of nearby camps. Because the location of exploitable resources varies through time in response to climatic and edaphic factors, evidence of resource exploitation (with or without camps) can be expected in parts of the study area where such resources may not occur today.

Resource exploitation by Euro-Americans in the historic period will be associated with actual or surmised locations of economically valuable minerals, good agricultural land, or seasonal ranges for domestic animals such as sheep and cattle. These uses may or may not be associated with permanent settlement; seasonal or ephemeral camps from the historic period a likely to exist along drive lanes, prospectors' adits, and trap lines.

Non-consumptive resource exploitation, such as viewing scenery and wildlife, is a relatively recent use of the study area. These resource uses are in part influenced by the location and nature of suitable settlements for base camps, and by the nature of transportation systems into and out of the study area, as well as within it.

Transportation

The nature of transportation systems affects the kinds and intensities of human activities that can occur in an area. Neither mountains nor rivers are necessarily barriers to people who travel light, or who do not perceive them as such; both can be barriers to those who must transport heavy and/or bulky loads, or whose perceptions and technology cannot cope with them.

Trails used by hunters and gatherers can be expected on ridges, along streams and rivers, and cross-country between major settlements or resource use areas. Trail location may differ between horse-mounted groups and foot travellers.

Early historic transportation features, including roads, bridges, ferries and fords, and boat landings, will occur where there is a need to obtain supplies and services from outside the study area; their design will reflect the amount and type of traffic flow as well as the availability of building materials, technology, labor, and capital. Recent transportation features will reflect an increasing volume of traffic within the study area, and include airstrips and a larger number of bridges.

To some extent, the nature and distribution of historic transportation systems will reflect decisions made in accordance with economic and political realities of the outside world, not simply local needs. Concepts of aesthetics, safety, and "need" for access will influence the location and nature of late historic transportation systems.

Inter-cultural Contact

The study area in historic times was a zone of interpenetration between two major language groups of hunters and gatherers. It also was an area in which Euro-Americans, Orientals, and native Americans competed for, and ultimately clashed over, land and resources. Evidence of mutual or alternating use of settlements, biotic resources, and transportation routes can be expected throughout both prehistoric and historic times, at least insofar as distinctive cultural patterns can be recognized.

Inter-cultural contacts between Indian groups, such as trade or actual population movements, should be reflected in the archaeological assemblages at major prehistoric settlements. Euro-American contacts with Indians were ephemeral within the study area, but contacts made outside of the study area during the fur trade era should be documented by finding trade goods within the study area at major Indian settlements or associated with burials.

Contact between Euro-Americans and other non-native ethnic groups such as Chinese may be documented in archaeological assemblages associated with historic settlements, especially those related to mining and other labor-intensive activities. Not all inter-cultural contacts of the historic period can be expected to be documented in written records, but evidence of both trade and inter-ethnic settlement may occur in archaeological materials at historic sites.

The Sheepeater War probably did not leave much in the way of physical evidence. Travel routes and places associated with the military campaign can, however, be identified from the literature. The lands associated with these routes constitute a visual record of the hardships endured by both parties in the conflict.

Minor Categories

Cultural resources associated with past human use other than settlement, resource exploitation, transportation, and inter-cultural contact can be expected to occur in the study area. These are lumped here under "minor categories," not because they are necessarily unimportant either numerically or culturally, but because their nature and distribution cannot be readily predicted on the basis of the known cultural and natural environments.

Cultural resources in this grouping include Indian sites associated with religious practices such as the vision quest; cave dwellings of the occasional Euro-American "hermit;" rock art panels (whose location is at least in part controlled by the location of suitable rock outcrops, but may occur on isolated boulders almost anywhere in the study area); and prehistoric and historic burials (most of which probably occur near settlements, but they may occur wherever the dead may fall).

CHAPTER FOUR

CULTURAL RESOURCES IN THE STUDY AREA

Informal knowledge about the history and prehistory of the study area had been gathered as early as the late 1920's, but formal studies of the nature and distribution of cultural resources in central Idaho did not begin until the late 1950's (Brown 1926; Scribner 1931; Swanson 1958a, b). This section describes the history of that formal research, its major findings, and the current status of cultural resource knowledge in the study area, as a background for developing recommendations presented in Chapter 5.

HISTORY OF CULTURAL RESOURCES RESEARCH IN CENTRAL IDAHO

Archaeology

Earl H. Swanson, Jr., was the first scholar to enter the study area for the express purpose of identifying remains of past human settlement and use. In the unpublished report of his brief float trip down the Middle Fork of the Salmon River, he called the area "an archaeologist's paradise," and stated that the sites he found possessed "a freshness" and "a clarity" unique in central Idaho (Swanson 1958b:1). These statements set the tone for subsequent scholarly perceptions of the Middle Fork, in particular, as a vast cultural laboratory (see, e.g., Knudson 1979; Pavesic 1978).

Swanson's models of Northern Shoshoni prehistory (see Chapter 3) were built on data from elsewhere in Idaho, but he believed that the sites of the Middle Fork somehow held an important key to understanding the nature of human cultural adaptations to environments throughout the interior northwest (Swanson 1972:189; Swanson and Sneed 1966:44). After completing his research at Shoup Rockshelters (Swanson and Sneed 1966), Swanson himself did not return to the study area, but he encouraged a series of students and colleagues to explore the Salmon River drainage over the next decades. Much of the data compiled below was collected because of Swanson's beliefs and actions.

Most of the archaeological research has been confined to the lands adjacent to major drainages: the main Salmon River (Harrison 1972a, b; Swisher 1973); the Middle Fork (Knudson et al. 1982; Pavesic 1978 reports an otherwise unpublished float trip he made in 1971, and another by Boreson in 1974); and Big Creek (Dahlstrom 1972). Clearance surveys conducted by the Forest Service in the late 1970's include some upland areas, and Dahlstrom (1972) reports finding a few archaeological sites along trails and near lake outlets in Bighorn Crags (Anderson 1979a, b, c; Anderson and Vagstad 1979; Bennett 1980; Clay 1977 a, b; Gallagher and Rossillon 1977; Hackenberger 1978; McDaniel 1978a, b, c, d, and 1979a, b, c, d; McDaniel and Wylie 1979; Peterson 1979; Pint 1978a, b, c, d; Prince 1977; Wylie 1977, 1978a, b, and 1979; see also Wylie and Ketchum 1979, 1980; and Appendix E of this report).

In conjunction with some of these studies, artifacts have been collected, and some analysis has been completed (e.g., Harrison 1972a, b). Little subsurface examination has been accomplished; Gaarder (1967) reports test excavations near Corn Creek on the main Salmon River, and several expeditions

were made to the Dagger Falls-Boundary Creek area on the Middle Fork (DeBloois 1976, 1977; Green 1975). Test excavations at Cache Bar and near Cove Creek, both on the main Salmon River, are mentioned in Wylie (1977, 1978a).

As part of the intensive investigation of the Middle Fork in 1978, Pavesic compiled an "archaeological overview" of that area, and Rossillon and Sprague conducted an assessment of the archaeological potential of Cabin Creek Ranch, on Big Creek (Pavesic 1978; Rossillon and Sprague 1978; see also Wylie 1980). The locations of all of these studies are shown in Figure 14.

History

Historical research in the study area has focused on compiling oral histories, tracing the military and political events related to the Sheepeater War, and reviewing the mining claims records for the Idaho Primitive Area (Brown 1926; Carrey 1968; Carrey and Conley 1978, 1980; Cater et al. 1973; Parke 1955; Parker 1968; Yeckel 1971). As part of the 1978 Middle Fork study, Rossillon prepared an "historical overview" of that area (Rossillon 1978). Hartung (1978) conducted an historical survey of the Big Creek drainage as a thesis project. Some of Hartung's sites were included in a study of the nature and distribution of the "Rocky Mountain" cabin by Wilson (1981). Finally, the Forest Service conducted a questionnaire survey of known or reported historic structures in the study area, the results of which are described in this report.

Assessment of Previous Research

Summaries of previous cultural resource studies in central Idaho are included in Appendix E. Funding for these studies has come from three sources: volunteers (including the writing of popular books); small summer stipends for college students through their academic institutions; and the federal government (including the Forest Service, National Park Service, and U.S. Geological Survey).

Archaeological surveys were conducted to collect data on specific areas, either to satisfy intellectual curiosity, or to prevent avoidable resource conflicts. Hence, some areas, such as the main Salmon River and the Middle Fork, are reasonably well known, while others are completely unexamined. A comprehensive research design for the entire study area has not been developed heretofore, and variations in definitions of site types and other kinds of data collected make comparison among previous studies less useful than might be desired.

Historical studies were conducted because of volunteer interest in "local color," and although the quality of such work is remarkably high, most of these studies suffer from a lack of professional involvement. This is especially true of studies of historic structures, where failure to collect (or to report) uniform kinds of data makes comparison particularly difficult among studies.

No single previous study covers the entire study area; no group of studies contains the same kinds of data, on the same kinds of resources, collected with the same kinds of standards. Furthermore, no single previous study includes data on the full range of cultural resources in the study area. Therefore, data summarized below are neither comprehensive nor complete; in some cases,

substantial additional field and archival work is necessary to make them so. As pointed out in Chapter 1, however, it is possible to determine (1) what is known about the study area, (2) what is not known, and (3) what steps are needed to fill the gaps in knowledge. Thus, the following sections emphasize these three topics.

RESULTS OF PREVIOUS ARCHAEOLOGICAL RESEARCH

Major Studies

Five archaeological surveys have been conducted in the study area (Table 19). Swanson's earlier study for the Crevice Reservoir is not included, because Harrison's later work incorporated Swanson's results (Harrison 1972a, b; Swanson 1958a). Swisher's survey falls mostly outside of the study area, but is included in Table 19 for comparison (Swisher 1973); his figures are not included in the numerical data given in other tables. The lower Salmon River is administered primarily by the Bureau of Land Management and various private landowners, and cultural resource data for that area are compiled in Sisson (1981).

Of the four studies to be considered here, Harrison (1972a) is the most complete. His objective was to locate all the archaeological resources along the main Salmon River, rather than to spot check or to sample. Earlier, unpublished surveys of the Salmon River corridor had located 58 sites; Harrison located an additional 241 sites, and documented a difference in site density in each of four "zones" of the river corridor (Table 20). He also noted a difference in site density between the north and south banks, in three of the four zones, and suggests that these differences may reflect some aspect of the Nez Perce/Shoshoni "boundary" in prehistoric times. Site densities appear to be higher where vegetation is heavy (Harrison 1972a:11). Whether this observation is related to aboriginal settlement pattern or to differential surface looting by visitors is not known.

Harrison's four "zones" correspond to relatively straight segments of the Salmon River, and are divided where the river changes direction (Figure 15). It is possible that the differences in density of open camps, rockshelters, and villages represent differences in local geomorphology, but although this hypothesis is appealing, Harrison (1972a, b) does not provide enough data to test it.

Harrison identified 6 site types, of which "open camps" were most numerous, followed by rockshelters, "villages," "beach sites," pictographs, and burials. It is possible that "beach sites" are simply the result of erosion of terraces containing "villages" and "camps," but few of these sites were mapped so it is difficult to assess their true nature. Site types probably overlap, as well, with pictographs occurring in rockshelters or near villages; site totals in Harrison's text do not agree with those derived from his site-specific lists. The latter were used to develop Table 20. Potentially stratified sites on the main Salmon River, based on data from Harrison (1972a) and others, are listed in Table 21.

FIGURE 14

SELECTED CULTURAL RESOURCE STUDIES IN CENTRAL IDAHO

Map number	Project/Author/Date	Results
1	Corn Creek test excavation/Gaarder/1967	housepits present
2	Corn Creek inventory/Pint/1978	no sites
3	Long Tom Shaded Fuel Break/Pint/1978	isolated flake
4	Salmon Canyon Copper Mine Road/Anderson 1979	no sites
5	Colson Ebenezer Timber Sale/Anderson 1979	4 historic cabins
6	Beartrap Timber Sale/Anderson and Vagstad 1979	10-LH-340, Nat. Reg
7	Crags Campground/Pint/1978	no sites
8	Republican Flat Road/Bennett/1980	12 historic sites
9	Vulcan Hot Springs/Prince/1977	2 lithic sites
10	Bad Bear Timber Sale/Clay/1977	basalt flake scatter
11	Blue Bunch Timber Sale/Clay/1977	2 hist., 2 prehistoric
12	Anderson/s Placer/McDaniel/1979	1 hist., 1 prehistoric
13	Lick Ck. Timber Sale/McDaniel/1979	3 prehistoric sites
14	Annie Rooney Timber Sale/McDaniel/1979	Early prehistoric site
15	Little Jackass Flat/Wylie/1979	4 prehistoric sites
16	Cache Bar/Wylie/1977	Harrison's 10-LH-163
17	Sater Cabin/McDaniel and Wylie/1979	not eligible
18	Cove Creek Timber Sale/Wylie/1978	Harrison's 10-LH-144
19	Boundary Ck. Test Exc./DeBloois/1977	no adverse effect
20	Falconberry Ranch/Wylie & McDaniel/1981	8 prehist., 37 hist.
21	Cabin Ck. Ranch/Rossillon & Sprague 1978	Nat. Reg. eligible??
22	Upper Middle Fork survey/Pavesic/1971	no report
23	Main Salmon R. survey/Harrison/1970-71	302 sites
24	Big Creek survey/Dahlstrom/1972	70 sites
25	Rock art on Middle Fork/Boreson/1974	no report
26	Crevice Reservoir/Swanson/1958	27 sites
27	Middle Fork survey/Swanson/1958	44 sites
28	Big Creek Hist. survey/Hartung/1978	65 sites
29	Middle Fork Campgrounds/Knudson/1978	31 sites
30	Shoup Rockshelters/Swanson & Sneed/1966	excavated 2 shelters

Note: Summaries of all of these projects are in Appendix E.

LOCATION OF CULTURAL RESOURCE FIELD STUDIES

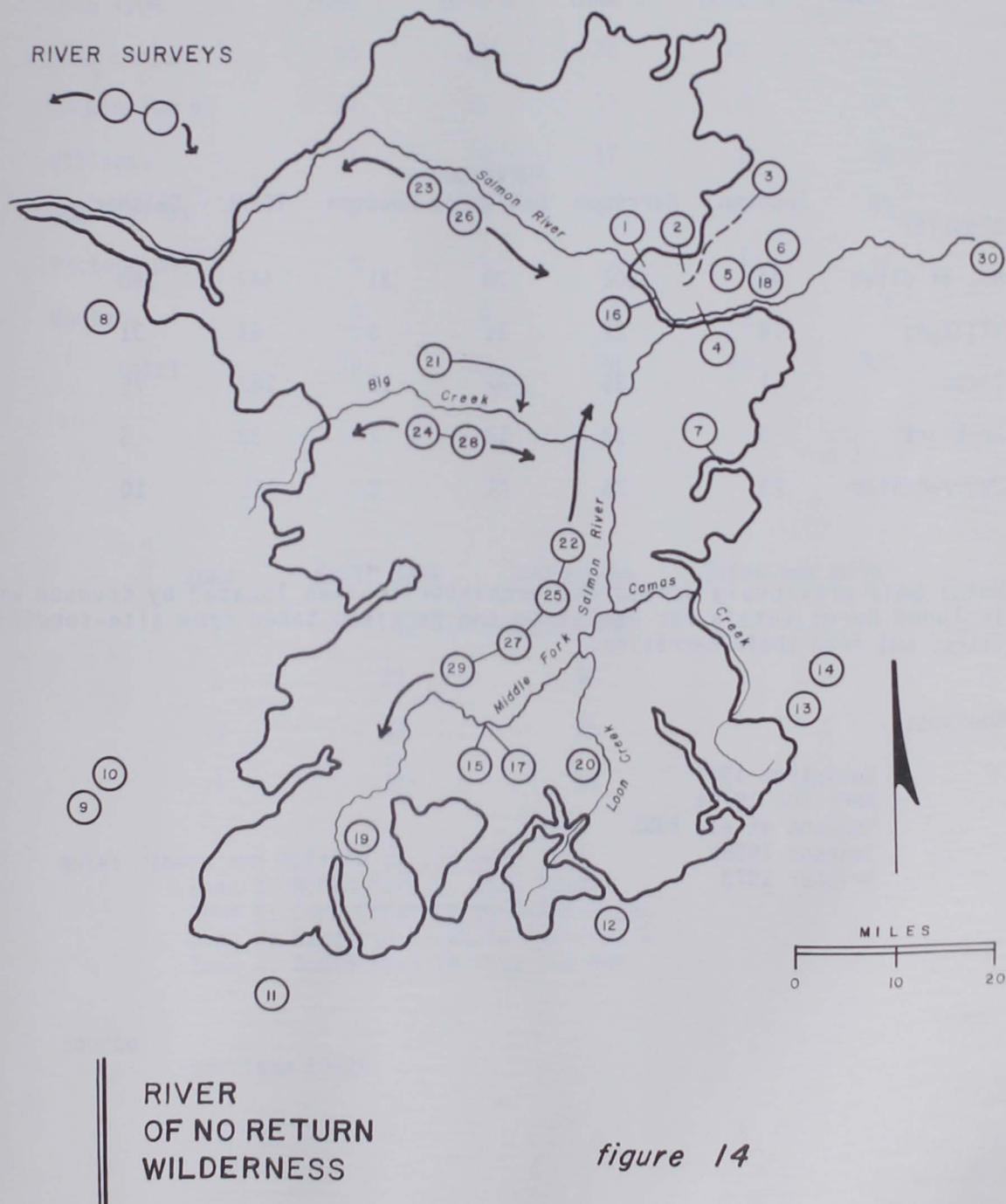


TABLE 19
RESULTS OF MAJOR ARCHAEOLOGICAL SURVEYS

RESULTS:	SURVEYOR:				TOTAL	Swisher
	Swanson	Harrison	Dahlstrom	Knudson		
No. of sites	44	301	70	31	447	150
Villages	19	22	11	9	61	31
Camps	1	135	32	19	187	75
Rock art	6	12	13	1	32	6
Cave/shelter	23	75	11	2	111	10

Note: Only previously unrecorded prehistoric sites located by Knudson are included here; totals for Dahlstrom and Harrison taken from site-specific lists, not from their narrative.

Sources:

Dahlstrom 1972
Harrison 1972a
Knudson et al. 1981
Swanson 1958b
Swisher 1973

TABLE 20
ARCHAEOLOGICAL ZONES ON THE MAIN SALMON RIVER

Site Type	Zone 1	Zone 2	Zone 3	Zone 4	Total
Open camps	44	29	36	26	135
Rockshelters	24	35	13	3	75
Villages	1	4	17	0	22
Beach sites	6	15	18	16	55
Pictographs	4	5	2	1	12
Burials	<u>0</u>	<u>0</u>	<u>0</u>	<u>2</u>	<u>2</u>
Total:	79	88	86	48	301

Zone	North bank	South bank	Sites per mile
1	no difference noted		1.7
2	29	55	2.6
3	58	21	3.1
4	30+	18	2.0

Note: Zones are defined as follows:

- Zone 1: North Fork to Corn Creek
- Zone 2: Corn Creek to Bargamin Creek
- Zone 3: Bargamin Creek to South Fork
- Zone 4: South Fork to Long Tom Bar

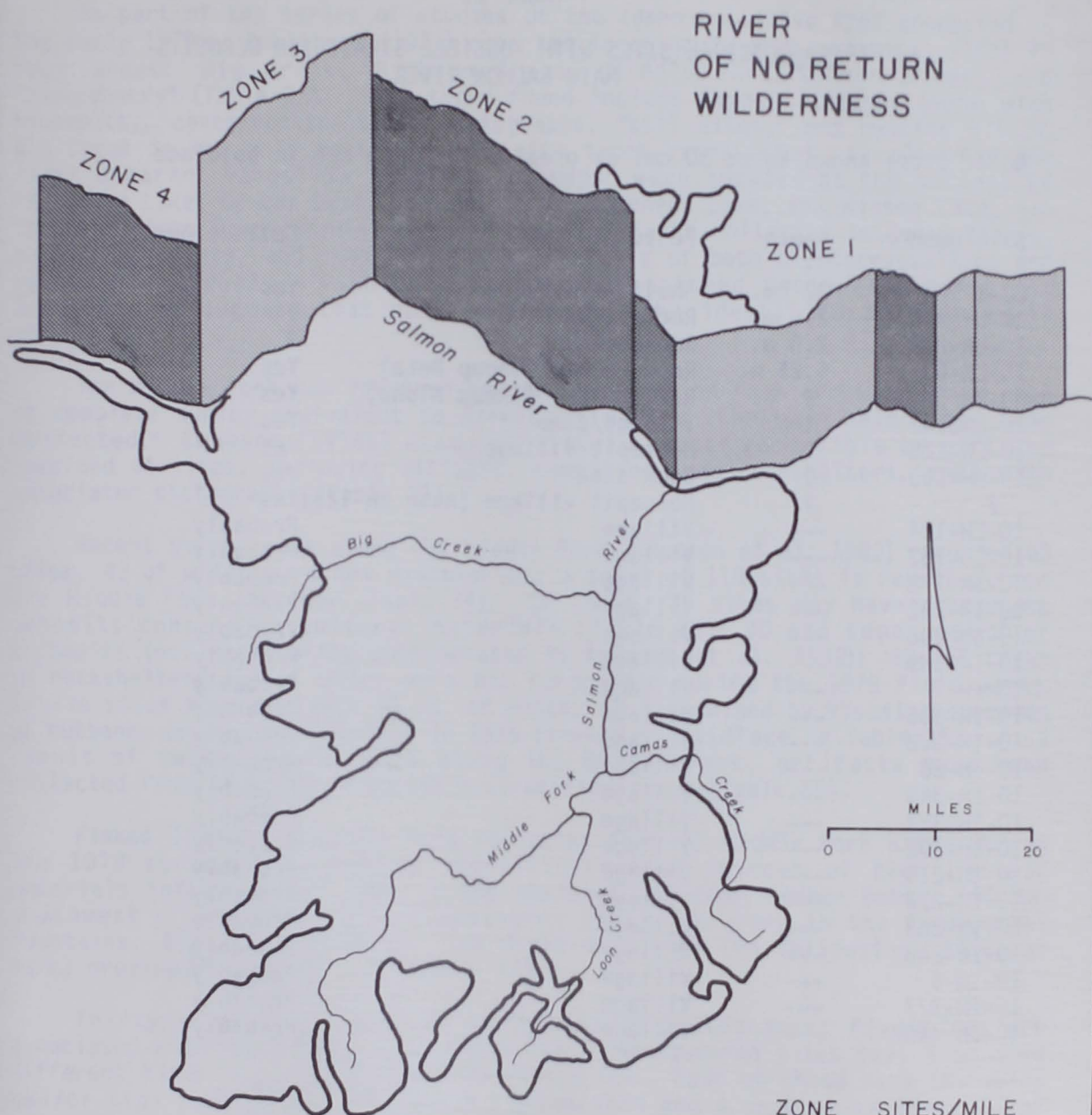
Source:

Harrison 1972b

FIGURE 15

Density zones for archaeological sites on the main Salmon River.

Source: Harrison 1972a, 1972b



ZONE	SITES/MILE
1	= 1.7
2	= 2.6
3	= 3.1
4	= 2.0

Four zones of Harrison's
Salmon River survey.

figure 15

TABLE 21

ARCHAEOLOGICAL SITES WITH POSSIBLE STRATIFIED DEPOSITS
MAIN SALMON RIVER

Note: Sites known to be 30 cm. or greater in depth are in **boldface**

Site number	Depth	Features	Collections
CC-1	32 cm.	Shell, flakes, point	Yes
10-LH-278	2.5 m.	Rockshelter	?
10-LH-279	2.0 m.	Rockshelter	?
10-LH-63	5.25 m.	Rockshelter (Shoup Beta)	Yes
10-LH-23	?	Rockshelter (Shoup Alpha)	Yes
10-LH0143	?	Village/camp	Yes
10-LH-125	?	Housepit village	Yes
10-LH-163	?	Open site	Yes
?	?	Housepit village (near LH-125)	Yes
10-LH-124	---	Village	Probably
10-LH-183	---	Village	Probably
10-IH-172	---	Village	Probably
10-IH-292	---	Village	Probably
10-IH-298	---	Village	Probably
10-IH-299	---	Village	Probably
10-IH-7	---	Village	Probably
10-IH-306	---	Village	Probably
10-IH-308	---	Village	Probably
10-IH-28	---	Village	Probably
10-IH-349	---	Village	Probably
10-IH-353	---	Village	Probably
10-IH-202	---	Village	Probably
10-IH-210	---	Village	Probably
10-IH-212	---	Village	Probably
10-IH-263	---	Village	Probably
10-IH-268	---	Village	Probably
10-IH-6	---	Village	Probably
10-IH-277	---	Village	Probably
10-IH-196	---	Village	Probably

Sources:

Anderson 1979c
Gaarder 1967
Harrison 1972a
Pint 1978b
Swanson and Sneed 1966
Wylie 1977

As part of the series of studies of the Idaho Primitive Area conducted in the early 1970's, Dahlstrom (1972) reported locating 70 archaeological sites in four areas: Big Creek, Bighorn Crags, Middle Fork Salmon River, and "backcountry" (Table 22). Site types found include camps, villages (some with housepits), caves/rockshelters, pictographs, "kill sites," and hunting blinds. Big Creek is the only area with all site types represented; it also has the least apparent vandalism to sites. "Camps" were located at the outlets of Big Clear Lake, Crater Lake, Gentian Lake, Gooseneck Lake, and Wilson Lake, all in the Bighorn Crags (Dahlstrom 1972:11). Artifacts collected included flakes, projectile points, and other chipped stone tools of both cryptocrystalline and obsidian materials. Finding a Desert side-notched projectile point led Dahlstrom to suggest that none of the sites he identified were very old (1972:29).

The Middle Fork has received recurrent attention from archaeologists, but no complete survey equivalent to Harrison's work on the main Salmon has been conducted.* Swanson (1958b) examined "likely spots" accessible by raft; he recorded 44 sites, including villages, campsites, and rockshelters, some with associated pictographs (Table 23).

Recent survey work along the Middle Fork (Knudson et al. 1982) recorded 63 sites, 43 of which were new discoveries; a total of 119 sites is reported from the Middle Fork corridor (Table 24). Of these, 75 sites may have subsurface deposits containing cultural materials (Table 25): 30 had some record of housepits (not necessarily corroborated by Knudson et al. 1982); 40 are caves or rockshelters (35 of which were not rerecorded during the 1978 field work). Twelve sites have at least 30 cm. of depth, as determined by visual inspection of cutbanks or by auger borings in 1978 (listed in **boldface** on Table 25). As a result of twenty years' work along the Middle Fork, artifacts have been collected from 34 of these possibly-stratified sites (Table 25).

Flaked lithic materials were collected from 55 Middle Fork sites during the 1978 survey. Laboratory identification of sources of these lithic materials indicates that 83% of the obsidian was from Timber Butte, 100 km. southwest of the study area (Sappington 1981). Sources in the Centennial Mountains, Big Southern Butte, and Obsidian Cliffs (in Yellowstone National Park) provided the other 17% (Figure 16).

Thirty-three sites contain or consist of pictographs; five sites are associated with hot springs (see Table 24). Twenty-three sites have 2 or more different kinds of cultural features (Table 26). Four of these have housepits and/or tipi rings associated with pictographs and a cave or shelter; 19 of these are rockshelters with pictographs.

Small-scale Studies

Eight smaller-scale archaeological surveys or test excavations have been conducted in the study area. Gaarder (1967) tested site 10-LH-125 on the Salmon River at Cunningham Bar, and ascertained that housepits were indeed present. No diagnostic materials were recovered, and no data on lithic materials are presented in his brief report.

**(Through the efforts of the Forest Service and volunteer archeologists in 1981, the entire Middle Fork has been essentially surveyed--Eds.)*

TABLE 22

ARCHAEOLOGICAL SITES RECORDED BY DAHLSTROM, 1972

Site Number	Description	Location/Remarks
10-VY-31	Village; possible housepits	Terrace above Big Creek
10-VY-32	Rockshelter with pictographs	Big Creek; vandalized
10-VY-33	Village; possible housepits	Big Creek; vandalized
10-VY-34	Village; 4 housepits	Fan on Big Creek
10-VY-35	Hunting blind	Tributary of Big Creek
10-VY-36	Rockshelter with pictographs	Big Creek
10-VY-37	Rockshelter with pictographs	Big Creek; vandalized
10-VY-38	Possible rockshelter	Big Creek
10-VY-39	Possible rockshelter	Big Creek
10-VY-40	Village	Big Creek
10-VY-41	Village; 10 housepits	Big Creek
10-VY-42	Camp	Terrace on Big Creek
10-VY-43	Kill site	Terrace on Big Creek
10-VY-44	Camp	Tributary of Big Creek
10-VY-47	Chipping station	Tributary of Big Creek
10-VY-48	Camp	Trail on Big Creek
10-VY-49	Flakes, points, cores	Fan on Big Creek, near VY-50, 51
10-VY-50	Flakes	Fan on Big Creek, near VY-49, 51
10-VY-51	Flakes	Fan on Big Creek, near VY-49, 50
10-VY-52	Hunting blind	Boulders on Big Creek
10-VY-53	Camp	Terrace on Big Creek
10-VY-54	Rockshelter	Tributary of Big Creek
10-VY-55	Rockshelter	Tributary of Big Creek
10-VY-56	Rockshelter	Big Creek near VY-54, 55
10-VY-57	Probable camp	Meadow on Big Creek
10-VY-58	Probable village	Opposite Big Creek tributary; disturbed by farming
10-VY-59	Camp	Big Creek
10-VY-60	Camp	Tributary of Big Creek
10-VY-61	Camp	Big Creek
10-VY-62	Camp	Tributary of Big Creek
10-VY-64	Camp	Tributary of Big Creek
10-VY-65	Camp	Big Creek, near VY-52
10-VY-66	Rockshelter with pictographs	Big Creek; 3' deep
10-VY-67	Rockshelter	Big Creek Cave, at Middle Fork confluence
10-VY-68	Camp	Big Creek
10-VY-69	Possible Village	Middle Fork; part of VY-70?
10-VY-70	Possible village	Middle Fork; part of VY-69?
10-VY-71	Possible village	Middle Fork; disturbed
10-VY-72	Possible village	Middle Fork; disturbed
10-LH-185	Rockshelter with pictographs	Middle Fork; horses depicted
10-LH-186	Village; possible housepits	Middle Fork
10-LH-187	Rockshelter with pictographs	Rattlesnake Cave, on Middle Fork
10-LH-188	Camp	Middle Fork beach
10-LH-189	Rockshelter with pictographs	Near rapids on Middle Fork
10-LH-190	Camp	Terrace on Middle Fork
10-LH-191	Possible village	Terrace on Middle Fork

10-VY-45	Possible kill site	Black Butte Trail; disturbed
10-VY-46	Camp	Cave Creek; disturbed
10-VY-63	Camp	Crooked Creek; disturbed
10-VY-73	Camp	Terrace on Brush Creek; disturbed
10-VY-74	Camp	Rush Creek
10-VY-75	Camp	Trail to Holy Terror Creek
10-IH-197	Hunting blind	Coyote Springs; disturbed
10-VY-198	Camp	near Cold Meadows airstrip
10-LH-192	Camp	Waterfall Creek Trail
10-LH-193	Camp	Waterfall Creek Trail; disturbed
10-LH-194	Camp	Wilson Creek; disturbed
10-LH-195	Camp	Wilson Creek Trail
10-LH-196	Camp	Wilson Creek Trail
10-LH-197	Camp	Wilson Lake; disturbed
10-LH-198	Camp	Near Mirror Lake, Bighorn Crags
10-LH-199	Camp	Crater Lake outlet
10-LH-200	Camp	Gooseneck Lake outlet
10-LH-201	Camp	Big Clear Lake outlet
10-LH-202	Camp	Big Clear Lake outlet; disturbed
10-LH-203	Possible vision quest site	Summit of Dome Mountain

Source:

Dahlstrom 1972

TABLE 23

SWANSON'S ARCHAEOLOGICAL SITES ON THE MIDDLE FORK

Site number	Site type	Remarks
10-VY-9	Rockshelter	Pictographs; 6' of fill
10-VY-10	Campsite	---
10VY-11	Village	Tipi rings
10-VY-12-15	Rockshelters	Pictographs, talus pit, deep deposits
10-VY-16-18	Rockshelters	Pictographs, shell, bone, deep deposits
10-VY-19	Village	Circular housepits up to 21' diameter
10-VY-20	Village	Housepits, boulder rings, tipi rings
10-VY-21	Rockshelter	Earth fill
10-VY-22	Rockshelter	Earth fill
10-VY-23, 24	Rockshelters	Earth fill
10-VY-25	Village	House depressions
10-VY-26	Village	House depressions, small rock rings
10-VY-27	Rockshelter	---
10-VY-28	?	Pictographs
10-VY-29	Village	Tipi rings, pictographs
10-LH-25a, b, c, d	Rockshelters	Earth fills
10-LH-26a, b	Rockshelters	Earth fills
10-LH-27	Village	Tipi rings
10-LH-28	Village	Tipi rings, housepits, small rock rings
10-LH-29	Village	Tipi rings
10-LH-30	Village	Tipi rings
10-LH-31	Village	Tipi rings
10-LH-32	Village	Tipi rings, boulder rings, housepits
10-LH-33	Village	Tipi rings, boulder rings, housepits, small rock rings
10-LH-34	Rockshelter	Earth fill
10-LH-35, 36	Rockshelters	Earth fills
10-LH-37	Village	Tipi rings, boulder rings, small rock rings, housepits
10-LH-38, 39	Rockshelters	Slight earth fill
10-LH-40	Rockshelter	Pictographs, deep deposits
10-LH-41	Rockshelter	Pictographs, deep deposits
10-CR-40	Village	Tipi rings, housepits, small rock rings
10-CR-41	Village	Tipi rings, small rock rings
10-CR-42	Rockshelter	Earth fill
10-CR-43	Village	Tipi rings, housepits, small rock rings
10-CR-44	Village	Tipi rings, small rock rings
10-CR-65	Village	Tipi rings, housepits, pictographs, two rockshelters

Source:

Swanson 1958b

TABLE 24

RECORDED SITES ON THE MIDDLE FORK, SALMON RIVER
(in order downstream)

Creek name	Site No.	Description	Recorded by
(Headwaters)			
	10-VY-28	pictographs	1
	10-VY-76	lithic scatter	3
Dagger			
Boundary	10-VY-118	lithic; talus pits	5, 7
	10-VY-119	lithic	5
	10-VY-134	camp; 30 cm. deep	5
Sulphur			
	10-VY-135	hist. mining	5
	10-VY-136	hist. mining	2, 5
Prospect			
Ramshorn			
Spike			
Velvet			
	10-VY-77	lithic	3, 5
	10-VY-78	talus pits	3, 5
Elkhorn			
Deerhorn			
	10-CR-595	historic	2, 5
Soldier	10-VY-137	Joe Bump Cabin	2, 5
	10-VY-79	hist.; poss. housepits	2, 3, 5
Lake			
Greyhound			
Dome	10-CR-586	historic	2, 5
Artillery			
Rapid River	10-CR-587	lithic	5
Mortar			
	10-VY-120	lithic	5
Cannon	10-CR-588	lithic	5
	10-VY-121	hist.; pictographs	2, 5
Lake	10-CR-589	historic	2, 5
Pistol			
	10-VY-150	historic	2, 5
Garden			
Short	10-VY-122	lithic	5
	10-VY-123	lithic; historic	2, 5
Indian			

Note: Sites preceded by VY or IH are on left bank; sites preceded by CR or LH are on right bank.

"Recorded by" key is as follows: (1) Swanson 1958b; (2) Carrey and Conley 1980; (3) Pavesic in 1971; (4) Boreson in 1974; (5) Knudson et al. 1982; (6) Wylie 1979c; (7) other (including Forest Service studies); (8) Dahlstrom 1972.

Sources: Carrey and Conley 1980

Knudson et al. 1982

Wylie 1979c

Indian			
Pungo	10-VY-80	hist.; poss. housepits	2, 3, 5
Teapot			
	10-VY-81	rockshelter/pictographs	2, 3, 4, 5
Little Soldier	10-CR-40	lithic; poss. housepits	1, 5
Marble			
	10-VY-87	rockshelter/pictographs	4
Thomas	10-VY-10	camp	1
Little			
	10-VY-133	hist.; lithic	2, 5
	10-CR-641	lithic	6
	10-CR-642	lithic	6
	10-CR-643	lithic	6
	10-CR-680	lithic	6
Jackass Gulch			
	10-CR-575	housepits	5
	10-CR-522	rockshelter/pictographs	4
Cameron			
Little Loon			
	10-CR-315	pictographs	7
	10-VY-11	housepits, pictographs	1, 4, 5
	10-VY-89	pictographs	4
	10-CR-42	rockshelter	1
Cougar			
	10-CR-41	tipi rings	1
Mahoney			
	10-CR-591	lithic	5
Pine			
	10-CR-43	pictos; tipi rings, HP's	1
Red Bluff			
Bacon			
Foundation			
Culver			
	10-CR-592	lithic	2, 5
	10-VY-82	housepits	3, 5
	10-VY-83	lithic	3, 5
	10-VY-84	talus pits	3, 5
Shep			
	10-VY-124	housepits, talus pits	5
White			
	10-CR-576	housepits	3, 5
Ford			
Bridge			
	10-VY-125	housepits	5
Jack			
	10-CR-314	pictographs	7
Loon			
	10-LH-29	housepits	1, 5
	10-VY-126	housepits	5
	10-LH-28	housepits, tipi rings	1
Cow			
	10-LH-255	rockshelter	1
	10-LH-256	rockshelter	1
	10-LH-257	rockshelter	1
	10-LH-258	rockshelter	1
	10-LH-303	rockshelter/pictographs	4
Heifer			

Heifer
Norton

10-VY-12	rockshelter/pictographs	1
10-VY-13	rockshelter/pictographs	1
10-VY-14	rockshelter/pictographs	1
10-VY-15	talus pit	1
10-LH-27	housepits	1, 5
10-LH-259	rockshelter	1
10-LH-260	rockshelter	1
10-VY-19	housepits	5
10-VY-16	rockshelter/pictographs	1
10-VY-17	rockshelter/pictographs	1
10-VY-18	rockshelter/pictographs	1

Big Aparejo

10-LH-316	talus pit	5
10-LH-301	rockshelter/pictographs	7

Cub
Little Aparejo

10-LH-304	rockshelter/pictographs	4
10-LH-317	hist.; poss. housepits	5; historic component is privately owned

Grouse

10-LH-32	tipi rings, housepits	1, 5
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Camas

10-LH-34	rockshelter	1
10-LH-35	rockshelter	1
10-LH-36	rockshelter	1
10-VY-85	poss. housepits	3, 5
10-LH-33	tipi rings, HP's, etc.	1
10-LH-318	poss. housepits	5
10-LH-37	tipi rings, HP's, etc.	1
10-VY-20	hist.; poss. housepits	1, 5

Bear

Aparejo

10-LH-38	rockshelter	1
10-LH-39	rockshelter	1

Little Bear

10-VY-22	rockshelter	1
10-VY-23	rockshelter	1
10-VY-24	rockshelter	1
10-VY-21	rockshelter/pictographs	1, 5
10-VY-25	village w/ housepits	1

Sheep
Warm Springs

10-LH-314	hist.; lithic	2, 5; owned by State
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Brush
Reservoir

10-VY-71	lithic	8
10-LH-191	lithic	5, 8
10-VY-72	lithic	8

Pole

Bernard

10-VY-69	lithic	8
10-VY-70	lithic	5, 8

Short

Short		
	10-LH-190 lithic	5, 8
Cold Spring		
	10-LH-319 lithic	5
	10-LH-189 rockshelter/pictographs	4
	10-LH-220 cave	3
Jack		
	10-LH-188 lithic; sherd	5, 8
Soldier	10-LH-320 hist.; poss. housepits	2, 5
Wilson	10-VY-127 hist.; poss. housepits	5
	10-VY-128 hist.; lithic	2, 5
Sammy Gulch		
	10-LH-40 rockshelter/pictographs	1, 3, 4
	10-VY-26 hist.; poss. housepits	1, 2, 5
Survey	10-LH-222 rockshelter/pictographs	3
	10-LH-186 poss. housepits	5, 8
	10-LH-185 rockshelter/pictographs	4
Kimmel		
Bobtail		
Waterfall	*10-VY-67 Big Creek Cave	7, 8
Big	10-LH-321 lithic	5
	10-VY-27 rockshelter	1
	10-LH-223 cavern/pictographs	1, 4
Wall		
	10-VY-129 lithic	5
Golden		
	10-VY-90 pictographs	4
Papoose	10-LH-224 rockshelter/pictographs	4
Ship Island	10-VY-86 rockshelter/pictographs	4, 7
	10-VY-130 lithic	5
	10-VY-131 lithic; poss. housepits	5
Parrot		
Nugget		
	10-VY-132 historic	2, 5
Cradle	10-LH-322 lithic; pictographs	5
Tumble		
	10-LH-323 historic, lithic	2, 5
	10-LH-324 rockshelter	5
	10-IH-65 pictos, HP's, shelters	1, 5
Stoddard		
	10-IH-462 rockshelter/pictographs	4
Reese		
Nolan		
Roaring		
Color		
Goat		
SALMON RIVER		

* (Tested by the Forest Service in September 1981--Eds.)

TABLE 25

ARCHAEOLOGICAL SITES WITH POSSIBLE STRATIFIED DEPOSITS
MIDDLE FORK, SALMON RIVER
(in order downstream)

Note: Sites known to be 30 cm. or greater in depth are in **Boldface**

Site number	Depth	Features	Collections
10-VY-134	30 cm.	None listed	yes
10-VY-77/78	30 cm.	None listed	no
10-VY-79	40 cm.	Housepits	yes
10-CR-587	40 cm.	None listed	yes
10-VY-123	50 cm.	None listed	yes
10-VY-80	---	Housepits	yes
10-VY-81	---	Rockshelter	yes
10-CR-40	---	Housepits	no
10-VY-87	---	Rockshelter	no
10-CR-575	30 cm.	Housepits	yes
10-CR-522	---	Rockshelter	no
10-VY11	---	Housepits	yes
10-CR-42	---	Rockshelter	no
10-CR-41	---	Tipi rings	no
10-CR-43	---	Housepits	yes
10-VY-82	---	Housepits	yes
10-VY-124	30 cm.	Housepits	yes
10-CR-576	33 cm.	Housepits	yes
10-VY-125	---	Housepits	yes
10-LH-29	---	Housepits	yes
10-VY-126	30 cm.	Housepits	yes
10-LH-28	---	Housepits	no
10-LH-255	---	Rockshelter	yes
10-LH-256	---	Rockshelter	yes
10-LH-257	---	Rockshelter	yes
10-LH-258	---	Rockshelter	yes
10-LH-303	---	Rockshelter	no
10-VY-12	---	Rockshelter	no
10-VY-13	---	Rockshelter	no
10-VY-14	---	Rockshelter	yes
10-LH-27	---	Housepits	yes
10-LH-259	---	Rockshelter	no
10-LH-260	---	Rockshelter	no
10-VY-19	---	Housepits	yes
10-VY-16	---	Rockshelter	no
10-VY-17	---	Rockshelter	no
10-VY-18	---	Rockshelter	no
10-LH-301	---	Rockshelter	no
10-LH-304	---	Rockshelter	no
10-LH-317	---	Housepits	no
10-LH-32	---	Housepits	yes, several
10-LH-34	---	Rockshelter	no

10-LH-35	---	Rockshelter	no
10-LH-36	---	Rockshelter	no
10-VY-85	---	Housepits	yes
10-LH-33	---	Housepits	no
10-LH-318	---	Housepits	yes
10-LH-37	---	Housepits	no
10-VY-20	---	Housepits	no
10-LH-38	---	Rockshelter	no
10-LH-39	---	Rockshelter	no
10-VY-22	---	Rockshelter	no
10-VY-23	---	Rockshelter	no
10-VY-24	---	Rockshelter	no
10-VY-21	73 cm.	Rockshelter	yes
10-VY-25	---	Housepits	yes
10-LH-189	---	Rockshelter	no
10-LH-220	---	Rockshelter	no
10-LH-320	---	Housepits	yes
10-VY-127	---	Housepits	yes
10-LH-40	---	Rockshelter	no
10-VY-26	---	Housepits	yes
10-LH-222	---	Rockshelter	no
10-LH-186	---	Housepits	yes
10-LH-185	---	Rockshelter	no
10-VY-67	---	Big Creek Cave	yes
10-LH-321	40 cm.	None listed	yes
10-VY-27	---	Rockshelter	no
10-LH-223	---	Rockshelter	no
10-LH-224	---	Rockshelter	no
10-VY-131	---	Housepits	yes
10-LH-322	30 cm.	None listed	no
10-LH-324	---	Rockshelter	yes
10-IH-65	---	Housepits, rockshelter	no
10-IH-462	---	Rockshelter	no

Sources:

Knudson et al. 1981
Pavesic 1978
Swanson 1958b
Wylie, Scott and Gallagher 1981

TABLE 26

ARCHAEOLOGICAL SITES WITH TWO OR MORE KINDS OF FEATURES
MIDDLE FORK, SALMON RIVER
(in order downstream)

Site number	Features noted/Remarks
10-VY-81	Housepits, rockshelter, pictographs; Boreson's VY-87
10-VY-87	Rockshelter, pictographs; Boreson's VY-9
10-VY-11	Housepits, tipi rings, pictographs
10-CR-43	Housepits, tipi tings, pictographs
10-LH-303	Rockshelter, pictographs
10-VY-12, 13, 14	Rockshelters, pictographs
10-VY-16, 17, 18	Rockshelters, pictographs
10-LH-301	Rockshelter, pictographs
10-LH-304	Rockshelter, pictographs
10-VY-21	Rockshelter, pictographs
10-LH-189	Rockshelter, pictographs
10-LH-40	Rockshelter, pictographs; also listed as LH-187, LH-221
10-LH-222	Rockshelter, pictographs
10-LH-185	Rockshelter, pictographs
10-LH-223	Rockshelter, pictographs; Swanson's LH-41
10-LH-224	Rockshelter, pictographs
10-VY-86	Rockshelter, pictographs
10-IH-65	Housepits, tipi rings, rockshelter, pictographs
10-IH-462	Rockshelter, pictographs

Sources:

Knudson et al. 1981
Pavesic 1978
Swanson 1958b

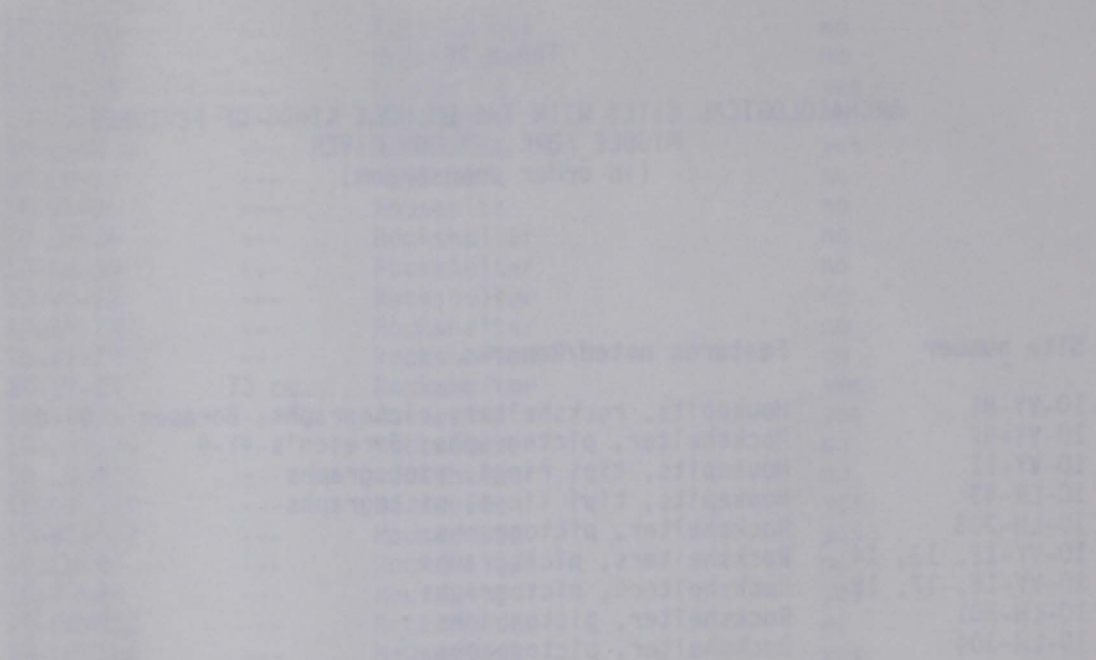


FIGURE 16

Locations of selected obsidian sources used by prehistoric occupants of the Middle Fork.

Source: Sappington 1981

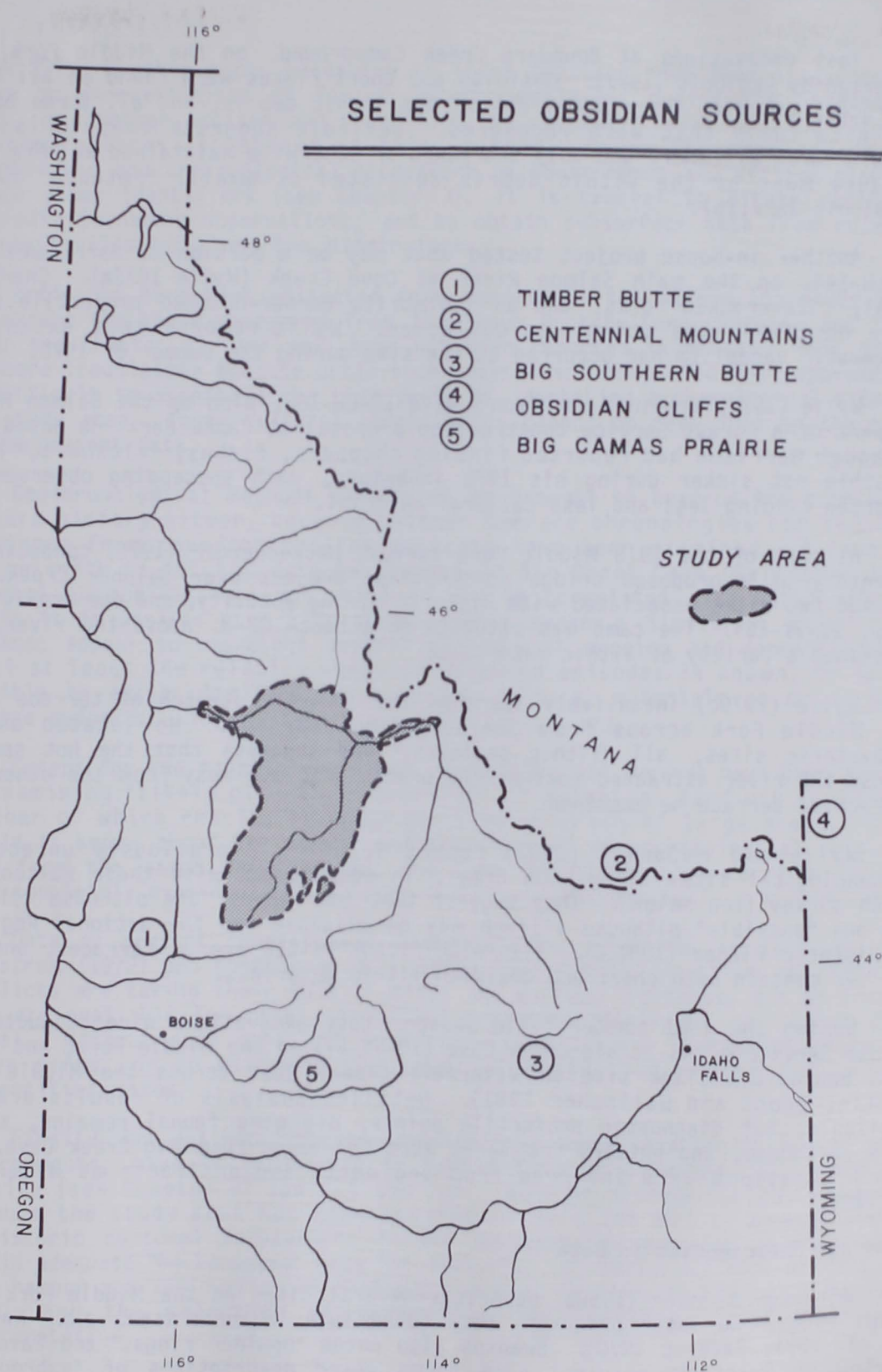


figure 16

Test excavations at Boundary Creek Campground, on the Middle Fork, are reported by DeBloois (1977). Obsidian and chert flakes were found on all three terraces; obsidian represented 25% of the lithic debris, and all three of the definite tools that were recovered. DeBloois suggests that tools were manufactured elsewhere and only sharpened or otherwise maintained at this site, because most of the lithic debris consisted of small, "retouch" flakes (DeBloois 1977:15).

Another in-house project tested what may be a portion of Harrison's site 10-LH-144, on the main Salmon River at Cove Creek (Wylie 1978a). Charcoal, shell, fire-cracked rocks, and an ignimbrite corner-notched projectile point were observed; the point was collected. Wylie reports that extensive, systematic vandalism had occurred at the site during the summer of 1978.

Wylie (1977) examined Harrison's site 10-LH-163, also on the Salmon River, as part of a Forest Service construction proposal at Cache Bar. He noted that although Harrison had reported finding choppers, flakes, "fleshers," and a possible net sinker during his 1972 inventory, each succeeding observer had reported finding less and less cultural material.

As part of the 1978 Middle Fork survey, Hackenberger (1978) conducted an inventory of a proposed bridge construction project over Sulphur Creek. He located two sites associated with historic mining activity, and one prehistoric camp, 10-VY-134. The camp was situated on a bench 32 m. above the river, and contained a variety of lithic materials.

Wylie (1979c) intensively searched the 1.5-mile stretch of terrace along the Middle Fork across from Sunflower Hot Springs. He located only 4 prehistoric sites, all "lithic scatters," and suggests that the hot springs across the river attracted most of the prehistoric use away from the otherwise attractive terrace he examined.

Wylie and McDaniel (1981) report locating 8 previously unrecorded archaeological sites along Loon Creek, in conjunction with their Falconberry Ranch survey (see below). They suggest that four camps, one pithouse village, and one "possible" pithouse village may be eligible for the National Register of Historic Places (1981:6). All "significant" sites are on terraces, and all but two contain both chert and obsidian lithic materials.

During the 1981 summer field season, test excavations were conducted by Forest Service crews at Big Creek Cave (10-VY-67) on the Middle Fork, and at an open housepit village site on Waterfall Creek, just across the Middle Fork (Wylie, Scott and Gallagher 1981). Detailed analysis of results are not available, but diagnostic projectile points, big game faunal remains, shell, fish vertebrae, and pottery fragments were recovered from Big Creek Cave, and two occupations were inferred from sediments and artifacts at Waterfall Village.

Gaps and Deficiencies in Data

Although Swanson (1958b) describes several sites on the Middle Fork with "tipi rings," no later observers have found such features (see, e.g., Knudson et al. 1981; Pavesic 1978). Swanson also noted "boulder rings," and Pavesic's review of Swanson's original site forms noted descriptions of "subrounded, rectangular cobble-wall rock structures" (Pavesic 1978:26; Swanson 1958b:3; see

Table 23). Whether rocks belonging to these features have been inadvertently moved by recreationists or Forest Service employees during the intervening years, or whether erosion and deposition are responsible for masking evidence of such features is unknown at this writing. Given the emphasis in the ethnographic and archaeological literature on house types and village plans as ethnic group identifiers (see Chapter 3), it is crucial to either verify or discredit Swanson's observations, and to obtain subsurface data from putative "housepit villages" along the Middle Fork.

Artifacts have been collected from numerous sites within the study area, but except for those recovered from the Shoup Rockshelters (Swanson and Sneed 1966; see Chapter 3), analyses have not been reported in detail. This gap is the more troublesome because until such analyses are completed and reported, it is difficult to ascertain the time depth of identified archaeological sites in the study area. Thus, cultural chronologies cannot be developed on the basis of the present data.

Geochronological methods cannot yet be brought to bear on the problem of culture history either, because neither terrace chronologies nor sediment sequences from cave/rockshelter deposits have been examined. A layer of volcanic ash is suspected to be present in Big Creek Cave (Gallagher 1981: personal communication), but until it can be correlated with dated volcanic events it is useless as a time-stratigraphic marker.* Similarly, major river terraces appear to represent several episodes of erosion and deposition, but until at least the relative sequence of these episodes is known, it is not possible to assign limiting dates to the cultural materials on or in these terrace deposits. **(No volcanic ash was observed--Eds.)*

Except for the main Salmon River, archaeological surveys have been limited to examining "likely places" or locations of potential land use conflicts, neither of which results in comprehensive coverage of large areas. Thus, little is known about the nature and distribution of archaeological resources away from the major watercourses, and even the Middle Fork corridor has not been completely examined. *(The survey has now been essentially completed--Eds.)*

Data on present condition of archaeological resources is lacking; both Dahlstrom (1972) and Knudson et al. (1981) report that vandalism and land use conflicts are taking their toll of sites and surface artifacts, but no similar data are available for other identified resources (Table 27; see Wylie 1977, 1978a). Without such data, it is difficult to develop protection plans for known sites, or to estimate the level of protection needed for as-yet-unidentified sites.

Finally, present gaps in data, particularly those relating to non-riverine environments, make it impossible to test ethnographic models of prehistoric reality (see Chapter 3) against the full range of archaeological evidence. Because the study area has been assumed to hold the key to understanding prehistoric cultural adaptations in the Northern Rockies, it is crucial to obtain adequate "backcountry" data for analysis. In addition, lack of complete data hamper the application of National Register criteria to the known resource base, and the selection of priorities for research, protection, or interpretation.

TABLE 27

VANDALIZED ARCHAEOLOGICAL SITES IN THE STUDY AREA

Site number	Description	Location	Source
10-CR-40	Village; housepits?	Middle Fork	Knudson
10-CR-41		Middle Fork	Knudson
10-CR-43		Middle Fork	Knudson
10-CR-586	Historic mining	Middle Fork	Knudson
10-CR-597	lithic	Middle Fork	Knudson
10-CR-599	lithic	Middle Fork	Knudson
10-CR-602	early lithic; historic	Middle Fork	Knudson
10-IH-65	housepits, pictographs	Middle Fork	Knudson
10-IH-197		"backcountry"	Dahlstrom
10-LH-27	housepits?	Middle Fork	Knudson
10-LH-28		Middle Fork	Knudson
10-LH-29		Middle Fork	Knudson
10-LH-30	housepits?	Middle Fork	Knudson
10-LH-31	housepits?	Middle Fork	Knudson
10-LH-32	housepits? tipi rings?	Middle Fork	Knudson
10-LH-33		Middle Fork	Knudson
10-LH-144	Village?	Salmon River	Wylie
10-LH-188	lithics; sherd	Middle Fork	Knudson
10-LH-190	lithic	Middle Fork	Knudson
10-LH-193	lithic	Bighorn Crags	Dahlstrom
10-LH-194	lithic	Bighorn Crags	Dahlstrom
10-LH-197	lithic	Bighorn Crags	Dahlstrom
10-LH-202	lithic	Bighorn Crags	Dahlstrom
10-LH-278	rockshelter	Salmon River	Anderson
10-LH-279	rockshelter	Salmon River	Anderson
10-LH-321	lithic; poss. depth	Middle Fork	Knudson
10-LH-324	rockshelter	Middle Fork	Knudson
PY-306	housepit village	Big Creek	Hartung
10-VY-11	housepits, pictographs	Middle Fork	Knudson
10-VY-26	lithic	Middle Fork	Knudson
10-VY-29		Middle Fork	Knudson
10-VY-32		Big Creek	Dahlstrom
10-VY-33		Big Creek	Dahlstrom
10-VY-37		Big Creek	Dahlstrom
10-VY-45		"backcountry"	Dahlstrom
10-VY-46		"backcountry"	Dahlstrom
10-VY-58		Big Creek	Dahlstrom
10-VY-63		"backcountry"	Dahlstrom
10-VY-67	Big Creek Cave	Big Creek	Dahlstrom, Hartung
10-VY-69		Middle Fork	Knudson
10-VY-70	poss. early lithic	Middle Fork	Knudson
10-VY-71		Middle Fork	Knudson
10-VY-72		Middle Fork	Knudson
10-VY-73		"backcountry"	Dahlstrom

--continued--

10-VY-76	lithic	Middle Fork	Knudson
10-VY-77	lithic	Middle Fork	Knudson
10-VY-118	poss. early lithic	Middle Fork	Knudson
10-VY-131	housepits?	Middle Fork	Knudson
10-VY-185		Middle Fork	Knudson

Sources:

Anderson 1979c
Dahlstrom 1972
Hartung 1980
Knudson et al. 1981
Pavesic 1978
Wylie 1978a

RESULTS OF PREVIOUS HISTORICAL RESEARCH

Major Studies

Aside from the popular works by Carrey and Conley (1978, 1980) and Yarber (1963), specific published histories of the study area are lacking. From one perspective, nearly every rapid or confluence along the major watercourses is associated with some "historic" event or person; from the perspective of "mainstream" historical research, though, central Idaho is a wasteland (Beal and Wells 1959; Carrey and Conley 1978, 1980; Hartung 1980; Parke 1955; Pomeroy 1965; Yarber 1963).

Two unpublished studies deal with historic cultural resources within the study area. Hartung (1980) documented 65 historical sites in the Big Creek drainage, about 50% of which had not previously been recorded. He located 10 sites believed to be associated with mining; 30 sites that were remains of cabins or ranches; 12 sites related to some aspect of Forest Service management; and a variety of "miscellaneous" sites, including aboriginal rock art, an airplane wreck, and the probable locations of some events which took place during the Sheepeater Campaign of 1879. Hartung's thesis includes some archival data, such as patent dates for private lands, but makes little attempt to assess either the architectural or historical values individual resources. He argues that the Big Creek drainage exhibits a "complete frontier cycle," a position with which most observers of central Idaho history disagree (see Chapter 3).

The other unpublished study is reported here for the first time. In response to specific language in the Central Idaho Wilderness Act, the Forest Service conducted a questionnaire survey of known historic sites and structures within the study area (Appendix G). Forms were distributed to each Ranger District; staff were asked to complete one form for each site or structure and to plot its location on a copy of the River of No Return Wilderness base map. Analysis of those forms returned resulted in a total of 469 reported historical sites, structures, and objects in the study area; combined with the 111 individual historical resources reported by Hartung (1980), a total of 580 historic cultural entities are known for the study area (Table 28).

Of this total, only 412 structures are known to exist; 50 reported resources consist of sites only, either because of the nature of their historic association (e.g., Sheepeater Campaign sites), or because structures formerly present have been removed. The present condition of at least 112 reported resources cannot be determined from the data provided; thus, it is not known whether these resources consist of sites only, sites with structures, or simply locations of events. Appendix G lists each reported resource, including those in Hartung (1980), by Ranger District, "condition" (known to exist, site only, or "unknown"), and functional association.

As Table 28 shows, most reported historic resources are associated either with Forest Service management of central Idaho, or with a variety of uses throughout their lifetimes. Resources associated with mining are surprisingly scarce, except in Big Creek; modern recreational facilities, a few homesteads, and some line shacks associated with trapping constitute the rest of the reported structures. "Trapping" associations are particularly problematical, especially in view of scarcity of target species in the study area; those sites such as BR-WF-11 and BO-C-53 which are alleged to be associated with Hudson's

TABLE 28

STRUCTURES REPORTED BY FOREST SERVICE HISTORIC RESOURCE INVENTORY

UNIT REPORTING:	FUNCTIONAL ASSOCIATIONS:						TOTAL	??	ABSENT
	A	B	C	D	E	F			
Salmon/North Fork	10	0	0	29	4	35	78	2	2
Salmon/Red River	0	5	0	0	0	21	26	17	2
Salmon/Cobalt	4	0	3	5	1	4	17	12	10
Challis/Middle Fork	10	11	2	29	28	14	94	11	2
Challis/Challis	3	0	0	10	0	0	13	2	0
Challis/Yankee Fork	2	0	0	3	0	0	5	5	0
Boise/Cascade	11	0	4	12	0	9	36	9	14
Boise/Loman	1	3	0	0	0	0	4	0	2
Bitterroot/West Fork	7	0	3	10	0	0	20	6	6
Payette/McCall	0	1	0	4	0	0	5	8	0
Payette/Big Creek	3	0	4	8	0	0	15	36	6
John Hartung thesis	44	6	2	9	0	38	99	4	6
TOTALS:	95	26	18	119	33	121	412	112	50

Definitions of Functional Associations:

- A Mining
- B Agricultural
- C Trapping
- D Forest Service Management
- E Recreational
- F Multiple uses during lifetime of structure/site

Note: "??" represents structures in unknown condition; it is not certain whether any structural remains are left at the site.

Source:

Forest Service Preliminary Inventory forms, 1981

TABLE 29
KNOWN HISTORIC STRUCTURES, BY DECADE BUILT

DECADE:	FUNCTIONAL ASSOCIATION:					UNKNOWN	TOTAL
	A	B	C	D	E		
Pre-1900	0	9	0	0	0	0	9
1900-1910	8	18	1	1	0	0	28
1911-1920	5	11	3	2	0	0	21
1921-1930	10	0	1	14	0	0	25
1931-1940	12	1	4	29	1	0	47
1941-1950	2	2	2	8	5	0	19
1951-1960	1	3	0	4	16	0	24
1961-1970	0	1	0	21	18	0	40
1971-1980	0	0	0	0	4	0	4
Unknown date	57	28	9	41	7	53	195
TOTALS:	95	73	20	120	51	53	412

Definitions of Functional Associations:

- A Mining
- B Agricultural
- C Trapping
- D Forest Service Management
- E Unknown association

Source:

Forest Service Preliminary Inventory forms, 1981

Bay Company activities are suspect both because of their recent vintage, and because it is unlikely that Hudson's Bay trappers really penetrated into the Salmon River Mountains, let alone constructed permanent dwellings. It is possible, of course, that an HBC trapper or two decided to settle down in central Idaho after the heyday of the fur trade era ended in the 1840's, or that an HBC axe remained in use for over 50 years, but the existing data are not sufficient to support that conclusion.

Of the 412 structures known to exist in the study area, only 83, or about 20%, are known to date from 1930 or before (Table 29). Over 47% are of unknown date of construction, most of those associated with mining activities or used for multiple purposes such that their origins and dates of construction could not be identified. Those structures built during the decade of the 1930's for the Forest Service are likely to have been constructed by the Civilian Conservation Corps; specific information, however, was not provided on many of the forms reviewed (see Appendix G). Except for the 1930's, the decade of the 1960's saw the construction of more buildings than any other during the 20th century, most of them as a result of increased outdoor recreation demand and the need for more intensive Forest Service management of these lands.

When the Forest Service inventory data are sorted by sites, rather than by structures, a different pattern appears (Table 30). Of the total of 378 "historic sites" reported, 50 (or 13%) are known to be without any structures; ownership data presented in Appendix G show that 49 sites (or 13%) are owned by non-federal or unknown parties. The largest category of sites relates to Forest Service management, followed by sites related to mining, and sites that have had several uses during their history.

Civilian Conservation Corps base camps and spike camps are known to have existed in the study area. Rossillon (1981:46) lists spike camps at Hoodoo Meadows, Monumental Creek, Grouse Creek, Mystery Creek, Shake Creek, and at the Loon Creek Ranger Station; base camps are reported in the Salmon National Forest at Squaw Creek, Shoup, Panther Creek, and at Ebenezer Bar (U.S.D.A.-Forest Service 1970). Only the site at Ebenezer Bar is included on the Forest Service historic resource inventory forms (as # S-NF-26).

Table 31 lists structures that are reported to have been removed from historical sites within the study area, and that are not included on the inventory forms compiled in Appendix G. Most such structures were removed during the 1960's and 1970's by the Forest Service; some privately-owned structures were removed by their owners, and a few were removed by natural causes such as wildfire.

Small-scale Studies

A few small-scale historical resource studies have been conducted within the study area in the late 1970's, all in response to Forest Service management or development proposals. The Cabin Creek Ranch property, on Big Creek, has been examined several times, with varying results (Hartung 1980; Rossillon and Sprague 1978; Wylie 1980). Cabin Creek Ranch is the earliest reported agricultural complex in the Big Creek, dating from the 1890's (Hartung 1980). Rossillon and Sprague (1978) determined that only 7 of the 34 buildings and 7 features remaining at the time of their survey seemed to exceed the 50-year rule of thumb for National Register-eligible properties, and none seemed to meet the other criteria for integrity, design, or historic association.

TABLE 30
SITES REPORTED BY FOREST SERVICE HISTORIC RESOURCE INVENTORY

UNIT REPORTING:	FUNCTIONAL ASSOCIATIONS:						TOTAL	??	ABSENT
	A	B	C	D	E	F			
Salmon/North Fork	5	0	0	14	4	12	35	2	2
Salmon/Red River	0	2	0	0	0	6	8	17	2
Salmon/Cobalt	2	0	3	5	1	1	12	12	10
Challis/Middle Fork	8	5	2	11	3	9	38	11	2
Challis/Challis	1	0	0	7	0	0	8	2	0
Challis/Yankee Fork	1	0	0	2	0	0	3	5	0
Boise/Cascade	10	0	4	6	0	3	23	9	14
Boise/Loman	1	3	0	0	0	0	4	0	2
Bitterroot/W. Fork	5	0	3	7	0	0	15	6	6
Payette/McCall	0	1	0	4	0	0	5	8	0
Payette/Big Creek	3	0	4	8	0	0	15	36	6
John Hartung	25	3	2	9	0	5	44	4	6
TOTALS:	61	14	18	73	8	36	372	112	50

Definitions of Functional Associations:

- A Mining
- B Agricultural
- C Trapping
- D Forest Service Management
- E Recreational
- F Multiple uses during lifetime of structure/site

Note: "??" represents structures in unknown condition; it is not certain whether any structural remains are left at the site.

Source:

Forest Service Preliminary Inventory forms, 1981

TABLE 31

STRUCTURES REPORTED AS REMOVED OR DESTROYED

Date	Source	Structure	Location
1976	USFS	lookout	Lookout Mountain
1976	USFS	outbuildings	Lookout Mountain
1960's	USFS, CC	cabin/shacks	Disappointment Bar, Salmon River
1960's	USFS	Hermit Hank's shack	Salmon River
1960's	USFS, CC	homestead	Richardson Bar, Salmon River
1965	USFS	trapper cabin	Big Trout Creek
1960's	USFS	lookout	Missouri Ridge
1950	USFS	lookout	Center Mountain
1958	USFS	tent frame	Lodgepole Point Lookout
1960's	USFS	lookout	Cottonwood Butte
1959	USFS	lookout	Lightening Peak
1960's	USFS	guard station	Mosquito Springs
---	USFS	lookout	Cougar Lookout
---	USFS	lookout	Sheep Mountain
---	USFS	lookout	Slide Rock
1976	USFS	lookout	Martin Mountain
---	USFS	lookout	Greyhound
1979	USFS	2 bldgs.	Fur Farm; burned by Mortar Ck. fire
1979	USFS	2 tent frames	Greyhound outfitter camp; " "
1979	USFS	2 tent frames	Slide Rock outfitter camp; " "
1970's	USFS	cabin	Beal Ranch
1966	USFS	lookout	Skunk Camp
1970	USFS, CC	mining (?)	Kitchen Creek
1971	USFS,	mining (?)	Spindle Creek
1968	USFS	mining (?)	Mackay Flat
1966	USFS	lookout	West Horse
1976	USFS	cabin	Lucky Creek
1974	USFS, CC	cabin	Long Tom
1970	CC	bridge	Horse Creek
---	CC	cabin	Horse Creek
1949	CC	schoolhouse	Yellow Pine Bar
1950's	CC	house	Wilson Bar
---	CC	cabin	Wind River
---	CC	cabin/schoolhouse	Bear Valley
---	CC	cabins	Indian Creek
---	CC	cabin	Marble Creek
post-1917	CC	cabin	White Creek
1930's	CC	cabin	Waterfall Creek

Sources:

Carrey and Conley 1978, 1980

U.S.D.A.-Forest Service data forms, 1981

Note: "Date" is date removed, when known; "Source" is data source (CC = Carrey and Conley; USFS = Forest Service).

Wylie's recent re-evaluation determined that in fact 9 "structures or areas," including three prehistoric archaeological sites, are eligible for the National Register on the basis of their "cultural significance" and association with functional themes such as ranching and trapping and wilderness recreation. Some of the structures and features at Cabin Creek Ranch are proposed for nomination to the National Register as part of an Historic District, to include localities associated with the Sheepstealer Campaign as well as the remains of early Euro-American settlement and resource exploitation (Appendices 3 and 9 in Wylie 1980).

Wylie and McDaniel (1981) reported a survey of the Falconberry Ranch property, on Loon Creek; their archaeological findings have been described above. Of 37 structures, only the barn could be identified as dating from the original 1910 settlement, although all three structures associated with the Biggs Ranch in the 1920's were considered significant. The rest of the structures were built after 1950, and although they have potential for continued original or adaptive use, they are not believed to represent historic values.

McDaniel and Wylie (1979) examined the Sater Cabin, near Little Creek on the Middle Fork, and concluded that it retained few historic values because of previous management decisions by its owners. Inaccurate restoration, including substitution of non-original materials and designs, had compromised its physical integrity, despite its value as one of the earliest remaining homestead structures on the Middle Fork. In addition, the rest of the original structures and features associated with John Sater's early 20th century farm have long since disappeared.

A study of some kind must have been conducted as part of preparing the National Register nomination for the Jim Moore Place in 1977. The remains of this early homestead were listed on the National Register of Historic Places in March, 1978, because of their significance to early agriculture and commerce (Marti 1977; U.S. Department of Interior 1979).

Gaps and Deficiencies in Data

Fewer historic resource surveys have been conducted in the study area than surveys for prehistoric archaeological sites; geographic coverage is better, though, probably because structures are relatively easy to recognize in the field. In addition, many of the structures with potential historic value in the study area are still in use, and therefore their existence is well-known. Although some differences in the distribution of sites and structures related to specific functional "themes" can be discerned in the data, it is likely that these reflect actual differences in the distribution of historic uses, and not serious differences in the intensity of inventory.

Serious deficiencies do exist in the quantity and quality of data available for each known site or structure (Appendix G). Fully 21% of those structures reported for the study area are in "unknown" condition; of the 412 structures that are described in the Forest Service inventory as more-or-less "intact," their exact condition has not been reported in detail or by the application of uniform criteria (Table 28). Furthermore, nearly one-half of the "known" structures cannot be assigned a date of construction on the basis of present data (Table 29).

Except for two historic dumps recorded at Cabin Creek, and two at the Falconberry Ranch, little analysis of historic archaeology potential exists (Rossillon and Sprague 1978; McDaniel and Wylie 1979). Those sites listed in Table 31 and Appendix G as lacking structural remains may yet retain considerable potential for historic studies, depending on the methods used to remove the structures, and on the nature of other "clean up" activities (see, e.g., Simms 1980; Wegars and Sprague 1981).

Virtually none of the previous historical research conducted within the study area, either on chronology and interpretation, or on historic sites and structures, has had the benefit of professional historical expertise. Studies have been conducted by "old timers," students, volunteers, and prehistoric archaeologists. The Forest Service historical resource inventory, while amassing vast amounts of data, contained few data useful for making the kind of management decisions called for by the Central Idaho Wilderness Act, and was compiled by existing staff with backgrounds in forestry, archaeology, economics--in short, everything but history, historic architecture, or historic archaeology.

The gaps in historic resource data, like those in the archaeological data described previously, make it difficult to determine suitable locations in the study area to test hypotheses about the historical development of the west. As Pomeroy (1965:165) points out, central Idaho constitutes the "farthest frontier of all," where "marginal homesteads hid behind marginal roads," and, until lately, behind "minimal tourist traffic" as well. Study of this period in our Nation's history depends on using appropriate cultural resources, many of which are likely to remain in and on the lands covered in this report. Until the gaps and deficiencies in data are filled, however, the potential contribution of these resources to our understanding of westward expansion cannot be assessed in detail.

THE BOTTOM LINE: NATIONAL REGISTER PROPERTIES

Only two cultural resources in the study area currently are listed on the National Register of Historic Places, one historic, the other prehistoric (Table 32). National Register properties located just outside the study area boundaries represent a variety of sites and structures, associated with settlement and resource exploitation activities. This and previous chapters in this report demonstrate that an equally wide variety of activities are either known or expected to be represented by cultural resources within the study area, and that by retention, study, and public interpretation these resources can contribute to our awareness and understanding of our historic and prehistoric past. Thus, cultural resources in the study area are seriously under-represented on the National Register, and further cultural resource work is needed to remedy this situation.

TABLE 32

NATIONAL REGISTER PROPERTIES IN CENTRAL IDAHO

Note: Properties in the study area in **boldface**

Date entered	Name	Location
10-15-66	Lemhi Pass	Salmon National Forest
2-23-72	Fort Lemhi	Near Salmon City
11-8-74	Shoup Rock Shelters	Salmon River, near Cobalt
4-4-75	Leesburg	Salmon National Forest
6-27-75	Idaho City	Boise County
9-5-75	Challis Bison Jump	Custer County, near Challis
12-30-75	South Boise Historic Mining District	Boise/Sawtooth National Forests
3-15-76	Town of Bayhorse	Custer County, near Challis
3-29-78	Jim Moore Place	Salmon River, near Dixie
12-20-78	Brown Tie and Lumber Company Mill and Burner	Near McCall

Sources:

U.S. Department of Interior 1979, 1981a

CHAPTER FIVE

EVALUATION AND RECOMMENDATIONS

As the preceding chapters have documented, the study area contains a diverse collection of geologic and biotic resources. The interaction of human populations with their environment has created prehistoric and historic cultural resources reflecting four major cultural themes: settlement, resource exploitation, transportation, and inter-cultural contact.

The nature and distribution of these cultural resources are shown in tables and figures in previous chapters and in the Appendices to this report, insofar as these characteristics can be determined from existing information. This chapter describes the overall significance of the study area, and recommends a course of action to obtain data needed for preparation of the Cultural Resource Management Plan required by the Central Idaho Wilderness Act of 1980. In addition, it sets forth a long-term research agenda for central Idaho, in keeping with its known and potential cultural resource values.

SIGNIFICANCE OF THE STUDY AREA

The lands contained within the River of No Return Wilderness, including the corridor of the Middle Fork Wild and Scenic River, and within the corridor of the Salmon Wild and Recreational River, constitute **a major natural laboratory for cultural resources research and public interpretation**, and offer **a unique opportunity to engage in carefully planned, long-term research to answer significant historical and anthropological questions**. Because of the wealth of cultural resources known and likely to exist within the study area, and the unique language in the Central Idaho Wilderness Act of 1980, the study area may constitute **the most significant large land area in the western United States** for these purposes.

The physical characteristics and geographic isolation of the study area make it an ideal location to test Swanson's hypothesis that the Salmon River Mountains may have served in prehistoric times "as a homeland for peoples rather than as a barrier between them" (Swanson 1972:24). For these same reasons, the study area contains suitable "islands on the western frontier" in which to study "patterns of colonization" during historic times (Hardesty 1980:77).

The known density of archaeological sites along the major river corridors in the study area is higher than or equal to that of any other intensely-studied drainages in the Northwest. The uplands are largely unexplored, but preliminary studies suggest that high-elevation archaeological sites may exist in greater numbers than currently fashionable models of western prehistory now predict, and that site types will show greater variety than now is documented. The complex and ever-changing vegetation mosaic of the Northern Rocky Mountains should result in a complex and changing set of cultural adaptations throughout the Holocene, some of which will be documented in archaeological remains in the study area. In addition, the possibility of finding the remains of extinct fauna, such as bison, or of sophisticated prehistoric hunting technology, such as traps and pounds, cannot be ruled out within the study area.

The historical resources documented within the study area represent a microcosm of western U.S. history. Social, industrial, economic, and political aspects of pioneer and frontier life influenced the nature and distribution of these resources. Imbedded in these archaeological and architectural remains are data on the final period of U.S. expansion that are not obtainable from any other source. Proper study of these resources, continued or adaptive use of structures, and development of public interpretation programs can bring frontier conditions vividly to life for modern visitors as no glossy urban reconstruction ever can. After all, the modern visitor still comes to the central Idaho "wilderness" to experience the "primitive conditions of environment, habitation, subsistence and transportation" for which these lands were set aside in the 1930's (Scribner 1931:2), and this experience truly represents a unique kind of "living history."

RECOMMENDATIONS

Short-range Data Needs

Cultural resources within the study area may hold the answers to important research questions about past human populations, but numerous gaps in existing data remain to be filled before these questions can be answered, or indeed, before the full range of questions can be known. In addition, certain planning decisions must be made regarding one category of cultural resources, historic structures, to comply with the requirements of the Central Idaho Wilderness Act. This section outlines some strategies for acquiring the necessary data for developing a long-term, comprehensive plan, and for fulfilling the requirements of the Central Idaho Wilderness Act.

The most obvious gaps in existing data are as follows:

1. Virtually no archaeological surveys have been conducted away from the major watercourses. Therefore, the nature and distribution of upland archaeological sites are unknown.
2. Virtually no subsurface data are available for previously-identified archaeological sites, although scattered and incomplete test excavations and analyses of surface artifacts suggest that sites may represent at least 6,000--and possibly 12,000--years of human use in the study area.
3. Data on the existence and condition of over one-third of the reported historic structures in the study area are not available. Without such data, planning and budget decisions about removal or continued management cannot be made.

Some of this work is being conducted during the summer 1981 field season (see Appendix H). The strategies below are intended for implementation during the 1982 field season and beyond.

Archaeological Survey: Landform Analysis

Landtype mapping, such as that conducted by Larson and Lovely (1972) for the Idaho Primitive Area, can be used to develop a **targeted survey strategy** for the study area. Analysis of specific landtypes can provide a qualitative

estimate of those areas where prehistoric archaeological sites are likely to be (1) present, (2) relatively undisturbed by natural processes, and (3) visible by surface examination methods. Table 33 and Figure 18 show these areas for those lands covered by Larson and Lovely's study; the additional lands included in the River of No Return Wilderness should undergo a similar analysis when landtype mapping is complete.

Landtypes listed in Table 33 were selected on the basis of the following characteristics:

1. Landtypes known to be subject to cryoturbation, high erosion rates, slides, and similar natural processes may have archaeological materials in or on them, but such materials are not likely to retain contextual integrity.

2. Landtypes known to contain high proportions of rock outcrops and/or talus slopes may contain specific kinds of archaeological features, such as caves and rockshelters, talus pits, and rock art.

3. Landtypes situated in areas where ethnographic sources suggest either settlement or resource exploitation activities to have occurred, and where natural geomorphic processes have not removed or masked evidence of such activities, are high priority areas to examine in future archaeological surveys. Such areas include riverine terrace systems, upland drainage heads, meadows, and lakeside environments.

Based on this analysis, 72.6 % of the lands included within the Idaho Primitive Area may contain evidence of prehistoric human settlement or use, but only 88,035 acres, or less than 6% of the total acres are likely to contain sites with substantial stratigraphic integrity or surface visibility. Less than 1% of the acres fit the ethnographically-reported pattern for village location: less than 5000 feet elevation, on a gentle slope (defined here as less than 25%), soil depth greater than 2 feet (with or without a cobble substrate), and minimal frost-heaving, erosion, or mass-wasting. Another 5% of the acres fit the ethnographically-reported pattern for ephemeral or seasonal use: at heads of drainage basins, in or near big-game summer range, or associated with meadows or permanent water sources.

About 24% of the lands in the Idaho Primitive Area are known to contain rock outcrops potentially suitable for habitation in caves and/or shelters, or production of rock art panels. Only 13%, or 176,000 acres, however, are at moderate elevations; most of these are along the major watercourses, and have received attention during previous archaeological surveys.

Areas where sites are likely to be present and relatively undisturbed, as mapped in Figure 18, should receive major emphasis for targeted surveys. Such surveys should have as their major objectives **increasing the range of site types, environmental zones, and potential resource-use areas investigated**, so that future management decisions can be made on the basis of these data. The most effective way to accomplish these surveys is by combining them with the survey of **heavily-used recreation trails**, recommended below as part of the process of planning for protection of known and potential resources in the study area. Such a targeted survey may be on a sampling basis, such that no less than 10% of the area with potential for sites is examined.

TABLE 33
LANDTYPES WITH CULTURAL RESOURCES POTENTIAL

Map No.	Slope	Elevation	Erosion	Remarks
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Lands suitable for major villages:

102	Flat	3200-4500'	very low	Fits ethnographic pattern
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Lands suitable for seasonal/ephemeral use:

101	0-10%	6000-7000'	very low	Elk summer range
101a	0-5%	6000-7500'	very low	Wet meadows; elk summer range
104	0-20%	6000-8000'	low	Travel routes; summer game range
108	45-65%	5000-7500'	low	Stable benches
110	10-25%	7000+'	low	Lakes; big game summer range

Lands suitable for use, but where evidence is likely to be disturbed:

109	20-55%	---	low	Frost churned, glacial origin
109-8	20-55%	---	low	Deer/elk summer range
109-d	20-45%	6500-7500'	low	Deer/elk summer range; frostheaved
110x	15-35%	4500+'	moderate	Lakes/cirques; big game range
114	35-60%	7000+'	moderate	Deer/elk summer range; frostheaved
120b-1	50-70%	4500-6000'	high	Deer/elk winter range; Middle Fork
120b-3	45-65%	3500-5000'	high	Big game winter range; Middle Fork
120b-9	45-65%	4500-6000'	high	Some deer/elk winter use
120c-7	55-75%	4500-6000'	high	Deer/elk winter range
122	65-85%	3500-6000	very high	Important big game winter range

Lands likely to contain rock art, caves, or rockshelters:

120d	65-75%	4500-6000'	very high	10-30% rock outcrop; S/W aspects
122	65-85%	3500-6000'	very high	10-70% rock outcrop; game range
124	55-75%	3500-6000	very high	50-30% rock outcrop

Source:

Larson and Lovely 1972

Prehistoric Cultural Chronology: Terrace Sequences

On the Middle Fork alone, 30 archaeological sites are assumed or known to have stratified deposits not contained in a cave or shelter (Table 24, Chapter 4). These and other open "village" sites occur on terraces along the major watercourses. As Chapter 2 suggests, there are likely to be several episodes of terrace formation along the rivers in the study area, perhaps associated with Holocene or previous climatic changes. The date of terrace formation provides a limiting basal date for any cultural materials on or in terrace sediments, and thus provides an important parameter in designing a targeted archaeological survey: "early" sites will not be found on "late" terraces.

The May 1, 1981 preliminary report for this overview project (Appendix I) included the recommendation that efforts be made to complete a terrace chronology as soon as possible, to serve as a baseline from which to estimate the cultural chronology of the study area. That analysis still is needed, and should be completed before selecting terrace sites for subsurface examination.

Prehistoric Cultural Chronology: Stratified Archaeological Sites

Table 24 (Chapter 4) lists archaeological sites on the Middle Fork with the potential for stratified deposits; similar tables could not be so readily prepared for sites in other parts of the study area. At this writing, test excavations have been conducted at only a half-dozen sites: at only two with possible housepits or other dwelling features (e.g., Gaarder 1967; Wylie, Scott and Gallagher 1981), and at one cave (Wylie, Scott and Gallagher 1981).

Stratified archaeological sites are expected to provide data on both cultural and natural chronology, and may provide data on changes in human adaptations to environment, and on inter-cultural relationships through time. Enclosed sites, such as caves or shelters, are likely to contain additional data on artifacts and subsistence if they contain dry deposits which help to preserve otherwise perishable organic materials. Open sites on terraces or in the uplands are likely to contain additional data on house types, residence pattern, and prehistoric demography because they may have been used continuously or repeatedly as major base camps. Additional subsurface investigations should be undertaken at a sample of these sites, such that at least the following data categories are examined:

1. A representative of an open (terrace) site associated with each major period of terrace formation.
2. A representative of an enclosed site from each major segment of each major watercourse (i.e., upper and lower Big Creek, Salmon River, and the Middle Fork).
3. A "depth potential" map of each known open site, based on auger borings or shovel tests to determine maximum depth to culturally sterile sediments. This work can be undertaken at the same time that scale maps and additional photographs are obtained for each site, as recommended below.

TABLE 34

CRITERIA FOR ASSESSING CONDITION CLASSES OF HISTORIC BUILDINGS

1. CLASSES OF DEFECTS

- A. **Slight defects** are those which normally are corrected through regular maintenance.
- B. **Minor defects** are relatively easy to correct, have little or no effect on the rest of the structure, but are beyond normal maintenance.
- C. **Major defects** have a substantial effect on the building, and require substantial work and expense to correct. Correction may require either complete replacement of a secondary component, or partial replacement of a primary component.
- D. **Critical defects** involve the failure, extreme deterioration, or inadequacy of a primary component to such a degree that the entire building is in jeopardy.

2. DEFINITION OF RATING CLASSES:

SOUND	less than three minor defects
MINOR REPAIRS	three or more minor defects or less than two major defects
MAJOR REPAIRS	two or more major defects or less than two critical defects
DILAPIDATED	more than two critical defects

Source:

Bureau of Governmental Affairs 1968

Full Documentation: Maps and Photographs

A number of cultural resources have been located for which there is inadequate documentation in the form of maps, photographs, and full narrative description. Among these are historic structures, prehistoric "village" sites with housepits or other features, and rock art sites. Ground-truthing of these reported sites is necessary before further management decisions can be made about them.

Historic structures for which inadequate data exist are listed in Appendix G. These should be documented photographically, and condition class data should be obtained as soon as possible, either through Forest Service engineering reports, or by additional field work. Table 34 illustrates one method of assigning condition class to an historic structure, drawn from experience in the Vieux Carre section of New Orleans (Bureau of Governmental Research 1968). This area has few buildings with outstanding architecture or craftsmanship, but rather it consists of a collection of modest buildings each of which contributes to the "tout ensemble" of the history of the area.

To apply the criteria, it is necessary to distinguish primary building components such as foundations, exterior walls, roofs, and roof structures, from secondary components such as porches, windows, chimneys, and doors. Classes of defects, and overall condition class of the structure are then assessed as given in the table. The advantage of this method is that estimates of kind and amount of work necessary to rehabilitate or restore the building--and hence costs of such work--can be estimated directly from the analysis.

Ultimately, selected historic structures will need documentation to the standards of the Historic American Buildings Survey (McKee 1970), and those selected for restoration or stabilization will need to be managed in accordance with the standards developed by the Secretary of Interior for such projects (Appendix J). First, however, the basic documentation described above should be obtained.

Archaeological sites still needing full documentation are listed in Table 35. These include sites that were not re-recorded during the 1978 Middle Fork survey (Knudson et al. 1982), and those not completely recorded by Harrison on the main Salmon River (Harrison 1972a). Both "village sites" with internal features and rock art sites are included. Scale drawings and maps of both kinds of sites should be made, both as a means of gathering basic data useful for applying National Register criteria (and developing nominations), and as a baseline from which to measure future changes due to vandalism or natural processes. Appendix K lists the recording standards for rock art sites developed by the American Committee to Advance the Study of Petroglyphs and Pictographs, which should be used in documenting known rock art sites in the study area (see also Boreson's Appendix A in Pavesic 1978).

Evaluating Cultural Resources and Setting Priorities

Part of the planning process called for in the Central Idaho Wilderness Act of 1980 consists of making management decisions about historic structures, and developing a long-term research program for historic and prehistoric archaeological sites. Once adequate descriptive data are obtained through the actions listed above in this section, the evaluation process can begin.

TABLE 35

ARCHAEOLOGICAL SITES STILL IN NEED OF FULL DOCUMENTATION

Sites not re-recorded during 1978 Middle Fork Survey:

1. Villages and camps

10-CR-41, 43, 44

10-LH-28, 33, 37, 192, 193, 194, 195, 196, 197, 198, 199, 200, 201, 202.

10-VY-10, 25, 31, 33, 34, 40, 41, 42, 44, 45, 46, 47, 48, 49, 50, 51, 53, 57, 58, 59, 60, 62, 63, 64, 65, 68, 69, 71, 72, 73, 74, 75, 76.

2. Rock art

10-CR-313, 315, 322

10-IH-462

10-LH-40, 185, 189, 222, 223, 224, 301, 303, 304

10-VY-28, 32, 36, 37, 66, 86, 87, 89, 90

3. Caves or rockshelters

10-CR-42, 322

10-IH-462

10-LH-34, 35, 36, 38, 39, 40, 185, 189, 220, 222, 223, 224, 255, 256, 257, 258, 259, 260, 301, 303

10-VY-12, 13, 14, 15, 16, 17, 18, 22, 23, 24, 27, 36, 37, 54, 56, 86, 87.

4. Other

10-LH-203

10-VY-35, 43, 52

Sites recommended for full documentation by Harrison (1972a):

10-IH-6, 7, 28, 172, 196, 202, 210, 212, 263, 268, 277, 292, 298, 299, 306, 308, 349, 353

10-LH-124, 168, 183

Sites listed by others as needing full documentation:

10-LH-125 Housepit village

10-LH-278 Rockshelter

10-LH-279 Rockshelter

Sources: Gaarder 1967
 Harrison 1972a
 Knudson et al. 1981

As condition class data are obtained on historic structures, the historical value(s) of those structures can be assessed by reference to data compiled in this report, in Rossillon (1978), and through additional archival, archaeological, and oral history research. By combining data on conditionclass and historical value, a matrix such as that presented in Table 36 may be developed to assist in choosing specific treatments for specific structures.

As additional data on distributiton, nature, and integrity of prehistoric archaeological sites are obtained through maps and photographs, these data can be combined with data on potential for subsurface stratigraphy, terrace chronologies, and landform analysis to provide specific criteria for assessing the research potential of archaeological resources in the study area. Once a list of archaeological sites with potential for answering certain kinds of research questions can be drawn up, research and management emphases can be selected for implementation, and communicated to the research community. Sites with the greatest research potential should receive major emphasis for protection from both vandalism and natural disturbance, as should sites with the greatest interpretive potential. Rational planning and management decisions must rest on a firm data base, such as that obtained through the actions recommended here.

Long-range data needs

Sites and structures within the study area are likely to contain information for answering questions important in history and prehistory. Earlier chapters in this report describe data, speculations, and problems relating to the natural environment, ethnographic groups, prehistory, and history of the study area, which can be rephrased as questions relating to settlement, resource exploitation, transportation, and inter-cultural contact. These questions provide the framework for continued cultural resources research in central Idaho.

The discussion which follows is intended to be a broad outline of research topics, questions, and potentials rather than a site-specific list of values. Sites appropriate for answering these questions cannot be selected on the basis of current data, but the lists below give some idea of the range of suitable topics for which data are likely to be available in the study area. Thus, this section provides a preliminary compilation of long-term research opportunities for the scientific and scholarly community.

Questions Relating to Settlement

Settlements in the study area are of three types: permanent (continuous), seasonal (re-used annually or periodically), and ephemeral (used once or very sporadically). The nature and distribution of settlements depends on geographic, social, and economic factors. Therefore, study of settlements can often provide data on these factors in historic or prehistoric times.

Research questions about settlement which may be answered by study of known and potential cultural resources in the study area include:

1. What sorts of settlements (if any) occur in high elevation environments (above 7,000 feet)?

TABLE 36

SUGGESTED MATRIX FOR SELECTING APPROPRIATE TREATMENTS FOR HISTORIC PROPERTIES

CONDITION CLASS:	HISTORIC OR CULTURAL VALUES:			
	High	Medium	Low	None
Sound	A	A/B	B	B
Minor defects	C	C/D	C/D	D
Major defects	E	E	F	F
Dilapidated	E/G	E/F/G	F/H	F/H
Removed/Absent	G	G/H	H	H

MANAGEMENT OPTIONS:

Category	National Register potential	Possible Treatments
A	yes	Maintain to Secretary's standards Interpret cultural values to public Continue to use; adapt to new use
B	no	Maintain for continued/adaptive use Remove if not needed
C	yes	Rehabilitate to Secretary's standards Interpret cultural values to public Continue to use; adapt to new use
D	no	Rehabilitate or modify for use Remove if not needed
E	yes	Restore to Secretary's standards Interpret cultural values to public Continue to use; adapt to new use Document to NAER standards and remove
F	no	Let deteriorate naturally Remove
G	possible	Manage as historic archaeological site
H	no	No special management needed

2. Is permanent settlement associated with specific geomorphic or resource conditions such as rapids, or certain biotic communities?
3. Are ephemeral settlements patterned with respect to the natural environment, such as the feeding habits of mountain sheep or the existence of camas meadows?
4. Do the locations of permanent settlements change through time in response to climatic or geomorphic changes?
5. What factors appear to influence the stability of locations of permanent settlements?
6. What factors appear to have caused the abandonment of permanent settlements?
7. How does the presence of a zone of "thermal inversion" in the canyons affect location of settlements?
8. How are the locations of seasonal or ephemeral settlements influenced by edaphic factors such as fires, floods, and slides?

Questions Relating to Resource Exploitation

Biotic and abiotic resources were used by both prehistoric and historic peoples within the study area. Often, the nature of the resource use can be determined from data associated with settlements. Often, however, settlements are not directly associated with resource use areas, and evidence must be sought in other ways.

Research questions about resource exploitation which may be answered by study of known and potential cultural resources in the study area include:

1. What criteria were used by early miners to select areas for prospecting? How successful were these criteria?
2. Did bison exist in central Idaho? If so, how does the pattern of use compare with prehistoric and historic patterns in adjacent areas?
3. How old is the ethnographic pattern of salmon exploitation in the interior northwest?
4. How did the distribution of biotic resources affect the distribution of historic and prehistoric peoples?
5. What is the source of lithic materials used for stone tool manufacture? How does this use change through time and space? Are particular sources preferred for specific tool types?
6. How do the patterns of biotic resource uses differ between historic and prehistoric peoples?

7. What factors account for the apparent abandonment of the central Idaho mountains by Indians in historic (pre-reservation) times, in contrast to the extensive previous use documented in archaeological sites?
8. What technologies were used to extract particular resources such as fish, minerals, and big game? How did these technologies change through time and space?
9. How much effect did human environmental manipulation have on the nature and distribution of biotic resources, either prehistorically or historically?
10. Can the structure of big game populations be discerned in faunal remains from archaeological sites? How does that structure change through time?

Questions Relating to Transportation

The roadless character of the central Idaho mountains led to classification of these lands as Wilderness, yet trails, fords, ferries, bridges, and air strips testify to prehistoric and historic transportation networks of remarkably large dimensions. Travel routes, as they affect their destination points and places along the way can be an important determinant of settlement pattern, resource use, and the nature and intensity of inter-cultural contact.

Research questions relating to transportation that may be answered by study of known and potential cultural resources in the study area include:

1. What routes were available to prehistoric peoples for travel through and within the study area? How did these routes change through time, in response to climatic, geomorphic, or social factors?
2. What role did specific transportation routes or methods play in the historical development of central Idaho?
3. What is the relationship between prehistoric travel routes and patterns of settlement and resource exploitation? How do these relationships change through time?
4. How did acquisition of horses by Indians in the 18th century alter their travel, settlement, and resource exploitation patterns? For example, are camps along travel routes located farther apart after horse transportation was acquired?
5. How does the availability of specific transportation technology affect the perception of "appropriate uses" of an area?
6. How does the increase in air fields between 1931 and 1976 reflect changes in national, regional, and local policies on land uses in central Idaho?

Questions Relating to Inter-cultural Contact

Many long-standing anthropological and historical questions in central Idaho can be subsumed under this topic. The interaction of native American ethnic groups, the relationships between immigrant and native Americans, and the relationships between groups of immigrant Americans such as Chinese and Europeans all are in need of exploration.

Research questions relating to inter-cultural contact that may be answered by study of cultural resources within the study area include:

1. Was there ever a boundary per se between Sahaptin and Numic speakers in central Idaho, or did these lands function more as a "zone of interpenetration"?
2. Does the location of this boundary or zone change through time?
3. Did prehistoric peoples in central Idaho perceive rivers as corridors or as barriers between neighboring groups?
4. What is the nature of the trade or exchange between ethnic groups in central Idaho? Does it change through time, either in intensity, the nature of the items traded, or the identity of the participating groups?
5. What was the nature of the early (pre-1850) contact between Indians and Euro-Americans in central Idaho?
6. What was the role of Chinese and other "minorities" in early Idaho mining and settlement?
7. Is the archaeological record a "layer cake" or a "continuum" in central Idaho sites? What are the implications of the answer for the leading models of western prehistory?

Sources of Data to Fill Short- and Long-range Data Needs

Many of the questions on the lists above are relatively straightforward, and require only improved distributional and descriptive data to answer. By locating and describing housepits, tipi rings, salmon fishing stations, historic mines and adits, contents of historic dumps, traces of trails, fords, and bridges, and analyzing rock art motifs and lithic artifacts, scholars may discover patterns of prehistoric and historic lifeways, and raise other, deeper questions about the past. Archival and oral historical studies may reveal pertinent facts about historical sites and structures, and about historic Indian lifeways in the study area.

The recommended research and management programs for the study area emphasize use of such readily obtainable data, in part because "austere" budget levels are expected over the near term, and in part because the deeper questions cannot be asked until these relatively simple questions have been answered. The management program outlined below, while oriented toward fulfilling the requirements of the Central Idaho Wilderness Act, provides an orderly set of strategies for implementing these short-and long-term studies.

TABLE 37

TOP THREE PRIORITIES FOR EACH CULTURAL RESOURCE MANAGEMENT TASK

Inventory

1. A visual (photographic) and condition class survey should be conducted for historic structures lacking adequate data.

Rationale: This will enable analysis of the integrity of known/reported structures, and an estimate of actions and costs needed to restore, stabilize, or maintain selected structures.

Estimated costs: \$15,000 to 20,000

2. Destination points of, and lands adjacent to heavily-used recreation trails should be surveyed to locate archaeological sites subject to vandalism or recreation-related impacts.

Rationale: This will provide data for estimating protection needs, as well as a sample of non-riverine lands to test the validity of the landforms-based model of site distribution.

Estimated costs: Two field crew plus support for one field season; approx. \$10,000.

3. Known rock art sites should be relocated, and recorded to the standards developed by the American Association to Advance the Study of Petroglyphs and Pictographs.

Rationale: This will provide baseline data for monitoring both natural deterioration and human vandalism, and for evaluating the potential for analysis of design motifs and other scientific studies by interested scholars. Rock art sites are the most poorly-documented prehistoric site type in the study area.

Estimated costs: Two field crew plus film and support for one field season; approx. \$15,000.

Evaluation

1. Homestead entry records, mineral survey notes, and G.L.O. survey field notes should be reviewed to ascertain pertinent facts about early historic resources in each condition class.

Rationale: These data are necessary for making the management recommendations to Congress called for by the Central Idaho Wilderness Act.

Estimated costs: Six months staff work; approx. \$10,000

2. Subsurface testing of potentially stratified prehistoric, and intact historic archaeological sites should be accomplished to ascertain what kinds of scientific questions each site may have the potential for answering.

A preferred strategy is to test at least one open site associated with each major period of terrace formation, in addition to at least one enclosed site (i.e., cave or rockshelter) per drainage. An acceptable strategy is to test at least one open site and one enclosed site in each major drainage. Careful attention should be paid to sediment stratigraphy, and identification of volcanic ash layers if present.

Rationale: Neither the contextual integrity nor the scientific potential of most of the identified archaeological sites is known at this time. These data are necessary to develop National Register nominations and to provide the scholarly community with a structured research opportunity. These data also are necessary to set priorities for protection of significant sites.

Estimated costs: \$1,000 to \$20,000 per site, depending on the extent of testing, the results, and analysis/report preparation time.

3. **National Register of Historic Places criteria should be applied to each cultural resource for which there are adequate data.** Those that qualify should be nominated to the National Register. Those that appear to qualify, but that lack sufficient data, should receive top priority for full documentation (see above, under Inventory), and should be protected until a definite assessment is made.

Rationale: Cultural resources in federal ownership which are listed on or eligible for the National Register require special consideration during planning and decision-making processes. Without knowing which resources qualify, the Forest Service cannot know the full extent of its cultural resource management job.

Estimated costs: Continuing investment of 1/4 to 1/2 person-year, as necessary data are acquired; approx. \$5,000 to 10,000 per year.

Protection

1. **Cultural resources known to be subject to vandalism should receive increased law enforcement emphasis, such as uniformed patrols; trailheads and other visitor access points should be posted with the Forest Service Antiquities Act sign, or equivalent.** Law enforcement training for recreation guards and similar employees should include a session on the Archaeological Resources Protection Act, the Antiquities Act, and Forest Service regulations prohibiting destruction of cultural resources.

Rationale: Consistent, strong enforcement can be an effective deterrent to the casual "collector" and to the experienced, professional looter. Absence of a strong presence or of adequate follow-through on reported vandalism can serve as permission to vandalize, especially in remote terrain.

Estimated costs: At least one staff member should attend the Forest Service Cultural Resource Law Enforcement training session, and disseminate the contents to co-workers; cost is 1 week's salary, plus travel.

2. Places with cultural resources subject to inadvertent damage from recreationists should be considered for removal from float-boat itineraries, or subject to other regulatory mechanisms to limit conflicting uses. Tour guides and visitors should be provided with orientation explaining the values of these resources, and the potential penalties for their damage or destruction.

Rationale: Most of these resources are within the wild and scenic corridors of the Salmon River and the Middle Fork, where the intensity of recreation use can be controlled relatively easily. Administrative tools are likely to be the least expensive, and therefore the most practical, for the short-term protection of these resources.

Estimated costs: Minimal.

3. All ground-disturbing projects, including installing or moving pit toilets or fire-rings, rehabilitating campgrounds, and vegetation management (including fire suppression) should receive clearance from a qualified cultural resource specialist and the State Historic Preservation Officer before proceeding.

Rationale: Although the recent record for construction projects has been fairly good, "maintenance" projects likely to impact cultural resources have not received clearance.

Estimated costs: Depends on the number and type of projects; salary and/or training for employee(s) conducting clearance surveys.

Enhancement

1. A brochure describing the nature and values of known cultural resources should be prepared for distribution to visitors at Forest Service contact points or through outfitter/guide permittees.

Rationale: Brochures represent the least cost per visitor contact, and can be distributed through others. In addition, brochures give the visitor something to take home instead of arrowheads or bottles.

Estimated costs: \$5,000 to 10,000, depending on format, number printed, etc.

2. Restoration and scholarly study should be conducted at appropriate cultural resources during the major visitor season, and visitors should be encouraged to participate, when feasible.

Rationale: Too often the visitor is merely told about ongoing cultural resource research or management activities, rather than being able to see them and, perhaps, participate in them directly. Hands-on experiences often are the most effective teaching and interpretive tools, because of their immediacy.

Estimated costs: Minimal; requires only appropriate scheduling of otherwise ordinary activities.

3. A "walking" or "floating" tour should be developed, either self-guided, or with the participation of existing Forest Service staff and permittees.

Rationale: This device provides an opportunity for either self-discovery or guided understanding of the cultural resource values in the area, and thus can enhance a visitor's recreational experience in the "backcountry."

Estimated costs: Variable, depending on the method selected. The self-guided version of this device could be incorporated into the brochure recommended above at little extra cost.

Management Direction for Known and Potential Cultural Resources

One of the original purposes in designating portions of central Idaho as the Idaho Primitive Area was "to protect Indian writings, caves, campgrounds, and all resources from vandalism" (Scribner 1931:22). Yet the following decades saw both purposeful and accidental destruction of many of these prehistoric sites, and demolition or deterioration of the numerous structural remains of early historic activities within the area. This section examines some of the management options available under current and proposed national direction for classified rivers and lands, and recommends a sequence of cultural resource management actions for the study area.

Current Direction for Designated Rivers and Wilderness

The management plan for the Middle Fork Wild and Scenic River provides for little active management of cultural resources, although their interpretation for public enjoyment is stated as a goal (U.S.D.A.-Forest Service 1969). The later plan for the Idaho Primitive Area included a more positive approach, and recognized that additional inventory and documentation of the cultural resource base was a necessary part of management (U.S.D.A.-Forest Service 1976b). Furthermore, the "protection and restoration" of "archaeological sites, early-day mining structures, and other special features" were listed as important management goals (U.S.D.A.-Forest Service 1976b:26).

The proposal for the Salmon Wild and Scenic River stated that "sites of significant scientific values will be protected in planning and implementing recreation and other developments," and proposed the use of scenic easements to protect historic and aesthetic values on private lands within the river corridor (U.S.D.A.-Forest Service 1976a:110, 114).

Current national direction for managing cultural resources in Wild, Scenic, or Recreational segments of designated rivers is internally contradictory, especially with respect to treatment of historic structures. For example, both removal of "detracting habitations" and "rehabilitation and restoration of damaged resources" are specific management objectives for Wild River segments, yet the manager is given no criteria on which to select those resources to be removed and those to be restored (U.S. Department of Agriculture and U.S. Department of Interior 1970). Proposed new direction clarifies this situation somewhat, and states specifically that "primary emphasis" in corridor management "shall be given to protecting...aesthetic, scenic, historic, archeologic and scientific features" of the river (U.S. Department of Interior 1981:9151). These proposed management guidelines further require managers to "identify activities which should be regulated in order to protect the values for which the river was designated," including the cultural resource values just mentioned (U.S. Department of Interior 1981:9155).

Current Forest Service policy regarding management of cultural resources in Wilderness is derived from a literal interpretation of one section of the Wilderness Act of 1964, and prohibits any management actions that require intervention in the natural process of deterioration. As discussed in Chapter 1, however, language in the Central Idaho Wilderness Act explicitly requires intervention to maintain, stabilize, or restore selected historic structures, and to study and protect archaeological resources.

TABLE 38

ARCHAEOLOGICAL SITES IN NEED OF PROTECTION OR OTHER MANAGEMENT
REPORTED BY MIDDLE FORK SURVEY

Note: High priority sites are listed in **boldface**

Site number	Description	Recommended action
10-CR-576	Housepit village	Protect, test excavate
10-CR-591	Dense lithic scatter	Protect
10-CR-597	Lithics at high camas meadow	Protect
10-CR-598	Historic	Protect
10-CR-611	Historic; Oro Grande	Protect
10-IH-65	Major village	Protect
10-LH-29	Village complex at Loon Creek	Protect
10-LH-32	Village complex at Camas Ck.	Protect
10-LH-188	Lithic scatter; sherd	Protect
10-LH-190	Lithic scatter	Protect
10-LH-191	Lithic scatter; camp	Protect
10-LH-322	Poss. stratified village	Protect; test excavate
10-LH-324	Rockshelter	Protect; test excavate
10-VY-11	Village	Protect; test excavate
10-VY-26	Historic	Protect
10-VY-70	Poss. early prehistoric	Protect; test excavate
10-VY-80	Historic and prehistoric	Protect; test excavate
10-VY-85	Village; possible housepits	Protect
10-VY-120	Lithic	Data recovery
10-VY-122	Lithic	Protect
10-VY-123	Historic and prehistoric	Record, protect, test excavate
10-VY-124	Village; poss. housepits	Manage as National Register site
10-VY-127	Lithic; poss. housepits	Protect
10-VY-128	Historic	Protect
10-VY-129	Poss. early prehistoric	Protect
10-VY-131	Lithic; poss. housepits	Protect; test excavate
10-VY-132	Historic	Record to NAER standards
10-VY-133	Historic	Record to NAER standards
10-CR-608	Historic	Test; protect if significant
10-CR-610	Historic	Test; protect if significant
10-CR-600	Lithic	Test if impact continues
10-CR-602	Historic	Test if impact continues
10-LH-27	Lithic	Test if impact continues
10-LH-186	Lithic; poss. housepits	Test if impact continues
10-LH-316	Lithic; poss. talus pits	Test if impact continues
10-LH-319	Lithic	Test if impact continues
10-LH-320	Historic/prehistoric	Test if impact continues
10-VY-19	Village	Test if impact continues
10-VY-20	Historic	Test if impact continues
10-VY-21	Rockshelter/pictographs/depth	Test if impact continues
10-VY-118	Lithic; poss. early site	Test if impact continues
10-VY-119	Lithic	Test if impact continues
10-VY-126	Lithic; poss. housepits/depth	Test if impact continues

Source: Knudson et al. 1982

This and other studies and reports compiled during preparation of the Comprehensive Management Plan for the River of No Return Wilderness and the designated rivers in the study area can be used to assist planners in developing new management direction, more in keeping with the requirements of the Central Idaho Wilderness Act and the proposed guidelines for Wild and Scenic River management. The next section outlines recommended management actions for developing and implementing appropriate new direction.

Proposed Direction

The process of cultural resource management can be divided into six activity categories: inventory, evaluation, protection, enhancement, implementation, and monitoring. The top three recommended priorities for each activity are listed in Table 37, along with estimated time and cost for accomplishment. Of critical importance is protection of known archaeological sites associated with campgrounds and other recreation-related facilities on the major rivers. Table 38 lists those sites most vulnerable to continued recreation impacts on the Middle Fork, drawn from an advance copy of Knudson et al. (1982); that report should be referred to for specific recommendations for each site. Equivalent data are not currently available for the main Salmon, but they should be forthcoming as the recommendations in this and other reports are implemented.

While these priorities do not represent complete consensus on the part of scholars and managers of cultural resources in central Idaho, they are derived from discussions and correspondence with over 20 concerned professionals, as well as a review of the literature. The recommended activities can, in many cases, be undertaken simultaneously, and at relatively low cost.

A key to success of any of these activities is **consistent, continuous involvement by a professional cultural resource specialist**, preferably one with expertise in both history and prehistory. As earlier chapters in this report document, there is considerable confusion about the precise nature and distribution of the cultural resource base in the study area, despite nearly 25 years' work. Crucial data still are missing from the record, such as maps of identified sites, because no uniform recording standards were developed and implemented; data on all but a few historical resources are virtually useless, because of dependence upon volunteer efforts for their compilation. It is vital, therefore, that full-time professional expertise be obtained for overseeing the cultural resource management program developed for the study area.

Such expertise may be obtained either through direct hire or reassignment of existing personnel. The important feature of whatever mechanism is selected is continuity, so that future cultural resource management decisions are internally consistent from one part of the study area to another, and from one field season to another.

The River of No Return Wilderness, with its Wild and Scenic Rivers, is a cultural resource management showcase for the western United States because of the wealth of its cultural resource base and the legal mandates for research and management of that base. By implementing the recommendations outlined in this report, the Forest Service can ensure that this area will continue to provide an exciting research laboratory and recreational experience for generations of visitors yet to come.

BIBLIOGRAPHY

A. REFERENCES CITED

- Anderson, Ken
1979b Cultural Resource Inventory of the Colson Ebenezer Timber Sale, Salmon National Forest, North Fork Ranger District. Report CRM-SL-106, on file at Salmon National Forest.
- 1979c Cultural Resource Inventory, Preliminary Report, Owl Creek Boat Ramp, Salmon National Forest, North Fork Ranger District. Report CRM-SL-89, on file at Salmon National Forest.
- 1979d Cultural Resource Inventory of the Salmon Canyon Copper Mine Road, Salmon National Forest, North Fork Ranger District. Report CRM-SL-102, on file at Salmon National Forest.
- Anderson, Ken and Kristi Vagstad
1979 Cultural Resource Inventory of the Beartrap Timber Sale, Salmon National Forest, North Fork Ranger District. Report CRM-SL-91, on file at Salmon National Forest. (Cited as Anderson 1979a).
- Agenbroad, Larry D.
1976 Buffalo Jump Complexes in Owyhee County, Idaho. Tebiwa Misc. Papers 1.
- Aikens, C. Melvin
1966 Fremont-Promontory-Plains Relationships. University of Utah Anthropological Papers 82.
- 1967 Plains Relationships of the Fremont Culture: A Hypothesis. American Antiquity 32(2): 198-209.
- 1978 The Far West. In Ancient Native Americans, edited by Jesse D. Jennings. San Francisco: W.H. Freeman and Co. Pp. 131-182.
- Ames, Kenneth M. and Alan G. Marshall
1980 Villages, Demography and Subsistence Intensification on the Southern Columbia Plateau. North American Archaeologist (2)1: 25-52.
- Anastasio, Angelo
1972 The Southern Plateau: An Ecological Analysis of Intergroup Relations. Northwest Anthropological Research Notes 6(2): 109-229.
- Antevs, Ernst
1948 The Great Basin, with Emphasis on Glacial and Post-glacial Times. III: Climate Changes and Pre-white Man. University of Utah Bulletin 38: 168-191.
- 1955 Geologic-Climatic Dating in the West. American Antiquity 20(4): 317-335.

- Aschmann, Homer
1958 Great Basin Climates in Relation to Human Occupance. University of California Archaeological Survey Reports 42:23-40.
- Arno, Stephen F.
1976 The Historical Role of Fire on the Bitterroot National Forest. U.S.D.A.-Forest Service Research Paper INT-187. Ogden.
- Arthur, George W.
1978 A Re-analysis of the Early Historic Plains Bison Drives. Plains Anthropologist Memoir 14, 23(82): 236-242.
- Barrett, Stephen W.
1980 Indian Fires in the Pre-Settlement Forests of Western Montana. U.S.D.A.-Forest Service General Technical Report RM-81:35-41.
- Baumhoff, Martin A. and J.S. Byrne
1959 Desert Side Notched Points as a Time-Marker in California. University of California Archaeological Survey Reports 48:32-65.
- Baumhoff, Martin A. and R. F. Heizer
1965 Post-glacial Climate and Archaeology in the Desert West. In The Quaternary of the United States, edited by H.E. Wright and D.G. Frey. Princeton: Princeton University Press. Pp. 697-707.
- Beal, Merrill and Merle Wells
1959 History of Idaho. New York: Lewis Historical Publishing Co., Inc.
- Bedwell, S.F. and L.S. Cressman
1971 Fort Rock Report: Prehistory and Environment of the Pluvial Fort Rock Lake Area of South-Central Oregon. University of Oregon Anthropological Papers 1: 1-25.
- Bennett, Lee A.
1980 Cultural Resource Inventory of the Republican Flat Road. Report CRM-PY-52, on file at Payette National Forest.
- Bense, Judy
1971 Cultural Stability on the Lower Snake River during the Altithermal. University of Oregon Anthropological Papers 1: 37-42.

1972 The Cascade Phase: A Study in the Effect of the Altithermal on a Cultural System. Unpublished Ph.D. dissertation, Washington State University.
- Bentzen, Raymond C.
1963 The Bentzen-Little Bald Mountain Site. Plains Anthropologist 8(19): 41-51.
- Berreman, Joel V.
1937 Tribal Distributions in Oregon. Memoirs of the American Anthropological Association 47.

- Birkeland, P.W. and R.R. Shroba
1974 The Status of the Concept of Quaternary Soil-Forming Intervals in the Western United States. Geographical Monographs 5: 241-276. Toronto.
- Boller, Henry A.
1972 Among the Indians: Four Years on the Upper Missouri, 1858-1862, edited by M.M. Quaife. Lincoln: University of Nebraska Press.
- Boreson, Keo
1979 Archaeological Test Excavations at 10-VY-165, South Fork Salmon River Satellite Facility, Valley County, Idaho. University of Idaho Anthropological Research Manuscript Series 57.
1980 Overview of the Petroglyphs and Pictographs in Idaho. Draft manuscript, on file at University of Idaho, Moscow.
- Bowers, Alfred
1964 Archaeological Reconnaissance in the Sawtooth Mountain Study Area. Copy of contract report to National Park Service, on file at Boise National Forest.
- Brauner, David Ray
1976 Alpawai: The Culture History of the Alpowa Locality. Ph.D. dissertation, Washington State University.
- Browman, David L. and David A. Munsell
1969 Columbia Plateau Prehistory: Cultural Development and Impinging Influences. American Antiquity 34(3): 249-264.
- Brown, W.C.
1926 The Sheepeater Campaign. Tenth Biennial Report, Idaho Historical Society, Boise.
- Bryan, Alan Lyle and Ruth Gruhn
1964 Problems Relating to the Neothermal Climatic Sequence. American Antiquity 29(3): 307-315.
- Buechner, Helmut K.
1960 The Bighorn Sheep in the United States, its Past, Present, and Future. Wildlife Monographs 4.
- Bureau of Governmental Research
1968 Plan and Program for the Preservation of the Vieux Carre. New Orleans.
- Butler, B. Robert
1961 The Old Cordilleran Culture in the Pacific Northwest. Occasional Papers of the Idaho State College Museum 5.
1962 Contributions to the Prehistory of the Columbia Plateau: A Report on Excavations in the Palouse and Craig Mountain Sections. Occasional Papers of the Idaho State College Museum 9.

Butler, B. Robert, continued

- 1963 An Early Man Site at Big Camas Prairie, South-Central Idaho. Tebiwa 6(1): 22-33.
- 1965 The Structure and Function of the Old Cordilleran Culture Concept. American Anthropologist 67(5): 1120-1131.
- 1968 An Introduction to Archaeological Investigations in the Pioneer Basin Locality of Eastern Idaho. Tebiwa 11(1): 1-30.
- 1971a A Bison Jump in the Upper Salmon River Valley of Eastern Idaho. Tebiwa 14(1): 4-32.
- 1971b A Short History of Bison West of the Continental Divide. Paper presented at the Society for American Archaeology Annual Meeting, Norman, Oklahoma.
- 1971c The Origin of the Upper Snake Country Buffalo. Tebiwa 14(2).
- 1976 The Evolution of the Modern Sagebrush-Grass Steppe Biome on the Eastern Snake River Plain. Nevada Archaeological Survey Research Paper 6: 4-39.
- 1978a An Alternative Explanation of the Large Housepit Villages on the Middle Fork of the Salmon River. Paper presented at the Idaho Archaeological Society meeting, Boise, October 7.
- 1978b A Guide to Understanding Idaho Archaeology, Third Edition. Special Publication of the Idaho Museum of Natural History, Pocatello.
- 1978c Bison Hunting in the Desert West before 1800: the Paleo-ecological Potential and the Archaeological Reality. Plains Anthropologist Memoir 14.
- 1981a Late Period Cultural Sequences in the Northeastern Great Basin Subarea and their Implications for the Upper Snake and Salmon River Country. Manuscript, review draft. Copy on file at Idaho State Univeristy, Pocatello.
- 1981b Personal communication, letter dated 5/18/81.
- 1981c When did the Shoshoni Begin to Occupy Southern Idaho? Essays on Late Prehistoric Cultural Remains from the Upper Snake and Salmon River Country. Occasional Papers of the Idaho Museum of Natural History 32.

Caldwell, Warren W. and Oscar L. Mallory

- 1967 Hells Canyon Archeology. River Basin Surveys Publications in Salvage Archeology 6. Washington, D.C.: Smithsonian Institution.

Capps, Stephen R.

- 1940 Gold Placers of the Secesh Basin, Idaho County, Idaho. Idaho Bureau of Mines and Geology Pamphlet 52.

- Carrey, John
1968 Moccasin Tracks of the Sheepeaters. Idaho County Free Press, Grangeville.
- Carrey, Johnny and Cort Conley
1978 River of No Return. Canbridge, Idaho: Backeddy Books.
- 1980 The Middle Fork and the Sheepeater War, Revised Edition. Cambridge, Idaho: Backeddy Books.
- Cater, F.W. D.M. Pinckney, W.B. Hamilton, R.L. Parker, R.D. Weldin, T.J. Close, and N.T. Zilka (cited as Cater et al.)
1973 Mineral Resources of the Idaho Primitive Area and Vicinity, Idaho. U.S. Geological Survey Bulletin 1304.
- Chalfant, Stuart A.
1974 Aboriginal Territory of the Nez Perce Indians. New Ork: Garland Publishing Co.
- Christman, Gene M.
1971 The Mountain Bison. The American West 8(3): 44-47.
- Clay, Vickie
1977a Cultural Resource Inventory Report, Bad Bear Timber Sale. Report CRM-BS-10, on file at Boise National Forest.
- 1977b Cultural Resource Inventory Report, Blue Bunch Timber Sale. Report CRM-BS-25, on file at Boise National Forest.
- Collins, William B., Philip J. Urness, and Dennis D. Austin
1978 Elk Diets and Activities on Different Lodgepole Pine Habitat Segments. Journal of Wildlife Management 42(4): 799-810.
- Corliss, David William
1972 Neck Width of Projectile Points: An Index of Culture Continuity and Change. Occasional Papers of the Idaho State University Museum 29.
- Coues, Elliott (editor)
1893 The History of the Lewis and Clark Expedition. New York: Francis P. Harper.
- Crabtree, Don and Earl H. Swanson, Jr.
1968 Edge-ground Cobbles and Blade-making in the Northwest. Tebiwa 11(2): 50-58.
- Curtis, Edward S.
1911 The North American Indian. Norwood: Plimpton Press.
- Dahlstrom, Max
1972 Results of the Archaeological Reconnaissance of the Idaho Primitive Area, 1971. Report on file, Boise Zone Office, Boise National Forest.

- Daubenmire, Rexford
1943 Vegetational Zonation in the Rocky Mountains. Botanical Review 9(6): 325-387.
- Daubenmire, R. and J.B. Daubenmire
1968 Forest Vegetation of Eastern Washington and Northern Idaho. Pullman: Washington Agricultural Experiment Station.
- Daugherty, Richard D.
1962 The Intermontane Western Tradition. American Antiquity 28(2): 144-150.
- Davis, Wilbur A.
1966 Theoretical Problems in Western Prehistory. Desert Research Institute Technical Report Series S-H, Social Sciences and Humanities Publications 1: 147-164. Reno.
- DeBloois, Evan I.
1976 Boundary Creek Boat Launch Site, Challis National Forest. Report on file, U.S.D.A.-Forest Service, Ogden.
1977 An Investigation of Cultural Resources at the Boundary Creek Boat Launching Facility, Challis National Forest, Idaho. Report on file, U.S.D.A.-Forest Service, Ogden.
- Delisio, Mario P.
1971 Preliminary Report on the Weston Canyon Rockshelter, Southeastern Idaho: A Big Game Hunting Site in the Northern Great Basin. University of Oregon Anthropological Papers 1: 43-57.
- Dillehay, Tom D.
1974 Late Quaternary Bison Population Changes on the Southern Plains. Plains Anthropologist 19(65): 180-196.
- Dominick, David
1964 The Sheepeaters. Annals of Wyoming 36(2): 132-168.
- Dort, Wakefield, Jr.
1962 Multiple Glaciation of Southern Lemhi Mountains, Idaho--Preliminary Reconnaissance Report. Tebiwa 5(2): 2-17.
1965 Glaciation in Idaho--A Summary of Present Knowledge. Tebiwa 8(1): 29-37.
- Fagan, John L.
1974 Altithermal Occupation of Spring Sites in the Northern Great Basin. University of Oregon Anthropological Papers 6.
- Fenneman, Nevins M.
1931 Physiography of the Western United States. New York: McGraw Hill Book Co., Inc.
- Ferris, W.A.
1940 Life in the Rocky Mountains. Denver: Fred A. Rosenstock.

- Franzen, John G.
1978 Lemhi Shoshone Subsistence and Settlement Patterns: A Systemic Approach. Unpublished M.A. thesis, Idaho State University.
- Fremont, J.C.
1845 Report of the Exploring Expedition to the Rocky Mountains in the Year 1842, and to Oregon and North California in the Years 1843-44.. Washington: Gales and Seaton, Printers.
- Frison, George C.
1976 The Chronology of Paleo-Indian and Altithermal Cultures in the Big Horn Basin, Wyoming. In Cultural Change and Continuity, edited by Charles E. Cleland. New York: Academic Press. Pp. 147-173.
- 1978 Prehistoric Hunters of the High Plains. New Ork: Academic Press.
- Fry, G.F. and J.M. Adovasio
1976 Human Adaptation during the Altithermal in the Eastern Great Basin. Nevada Archaeological Survey Research Paper 6: 66-73.
- Fryxell, F.M.
1926 A New High Altitude Limit for the American Bison. Journal of Mammalogy 7(2): 102-109.
- 1928 The Former Range of the Bison in the Rocky Mountains. Journal of Mammalogy 9(2): 129-139.
- Fryxell, Roald
1965 Mazama and Glacier Peak Volcanic Ash Layers: Relative Ages. Science 147(3663): 1288-1290.
- Fryxell, Roald, in cooperation with R.D. Daugherty
1963 Late Glacial and Postglacial Geological and Archaeological Chronology of the Columbia Plateau, Washington. Washington State University Laboratory of Anthropology, Division of Archaeology and Geochronology, Report of Investigation 23.
- Gaarder, Lorin R.
1967 A Report of Test Excavation on Cunningham Bar (10-LH-125), Salmon National Forest, 1967. Report on file at Forest Service Boise Zone Office, Boise National Forest.
- Gallagher, Joseph G.
1979 The Archeology of the Sheepeater Battleground and Redfish Overhang Sites: Settlement Model for Central Idaho. U.S.D.A.-Forest Service Intermountain Region Archeological Report 5.
- Gallagher, Joseph G. and Mary P. Rossillon
1977 An Archaeological Survey of the Proposed Furey-Racine Land Exchange (Preliminary). Report CRM-SW-2, on file at Sawtooth National Forest.

- Gallagher, Joseph G., Robert Lee Sappington, and Jerry Wylie
1979 Further Analysis of the Redfish Overhang Haskett Material Cache. Paper presented at the 32nd Northwest Anthropological Conference, Eugene, Oregon.
- Goss, James A.
1968 Culture-Historical Inference from Utaztekan Linguistic Evidence. Occasional Papers of the Idaho State College Museum 22: 1-42.
- Green, Dee F. (editor)
1975 The Wilderness and Cultural Values: A Symposium. U.S.D.A.-Forest Service Southwestern Region Archeological Report 7.
- Green, James P.
n.d. Cultural Resource Input to Proposed Land Use Plan, South Fork Salmon River Planning Unit, Payette and Boise National Forests. Report on file, U.S.D.A.-Forest Service Zone Office, Boise.
1975 Archaeological Evaluation of the Boundary Creek Campground Expansion and the Dagger Falls Recreation Site. Report on file, U.S.D.A.-Forest Service, Ogden.
- Grey, Don
1963 The Twik Burial Site, 48WA301. Plains Anthropologist 8(20): 98-102.
- Gruhn, Ruth
1961 The Archaeology of Wilson Butte Cave, South-Central Idaho. Occasional Papers of the Idaho State College Museum 6.
- Gunnerson, James H.
1969 The Fremont Culture: A Study in Culture Dynamics on the Northern Anazasi Frontier. Harvard University, Peabody Museum of American Archaeology and Ethnology Papers 59 (2).
- Gunther, Erna
1950 The Westward Movement of Some Plains Traits. American Anthropologist 52(2): 174-180.
- Habeck, J.R. and R.W. Mutch
1973 Fire-dependent Forests in the Northern Rocky Mountains. Quaternary Research 3(3): 408-424.
- Hackenberger, Steve
1978 Cultural Resource Inventory of the Sulphur Creek Bridge and Trail Project, Middle Fork Ranger District, Challis National Forest. Report CRM-CH-34, on file at Challis National Forest.
- Haines, Francis
1938a Where did the Plains Indians get their Horses? American Anthropologist 40(1): 112-117.
1938b The Northward Spread of Horses among the Plains Indians. American Anthropologist 40(2): 429-437.

- Haines, Francis, continued
 1955 The Nez Perces. Norman: University of Oklahoma Press.
- Haines, Francis D., Jr. (editor)
 1971 The Snake Country Expedition of 1830-1831: John Work's Field Journal. Norman: University of Oklahoma Press.
- Hammatt, Hallett H.
 1977 Geological Processes and Apparent Settlement Densities along the Lower Snake River: A Geocentric View. Northwest Anthropological Research Notes 1(1): 113-114.
- Hansen, Henry P.
 1944 Postglacial Vegetation of Eastern Washington. Northwest Science 18(4): 79-87.
 1947 Postglacial Forest Succession, Climate, and Chronology in the Pacific Northwest. Transactions of the American Philosophical Society 37.
- Hardesty, Donald L.
 1980 Historic Sites Archaeology on the Western American Frontier: Theoretical Perspectives and Research Problems. North American Archaeologist 2(1): 67-82.
- Harrison, Richard R.
 1972a The Final Report of the 1971 Salmon River Archaeological Survey. Report on File, U.S.D.A.-Forest Service, Boise Zone Office.
 1972b The Inventory Survey in Modern Archaeology. M.A. thesis, Idaho State University.
- Hartung, John Wiley
 1980 Documentation of Historical Resources in the Big Creek Drainage, Central Idaho. To be published in the U.S.D.A.-Forest Service Intermountain Region Archaeological Report series; also cited as 1978 (when it was written).
- Hendee, John C., George H. Stankey, and Robert C. Lucas
 1978 Wilderness Management. U.S.D.A.-Forest Service Miscellaneous Publication 1365.
- Hester, Thomas Roy
 1973 Chronological Ordering of Great Basin Prehistory. Contributions of the University of California Archaeological Research Facility 17. Berkeley.
- Hewes, Gordon
 1947 Aboriginal Use of Fishery Resources in Northwestern North America. Ph.D. dissertation, University of California (Berkeley).
- Hill, Richard D.
 1974 Final Report on the 1973 Lower Salmon River Archaeological Excavations. Copy on file at U.S.D.A.-Forest Service, Boise.

- Hitchcock, C.L. and A. Cronquist
1973 Flora of the Pacific Northwest. Seattle: University of Washington Press.
- Hoebel, E.A.
1938 Bands and Distributions of Eastern Shoshoni. American Anthropologist 40(2): 410-413.
- Hopkins, Nicholas A.
1966 Great Basin Prehistory and Uto-Aztekan. American Antiquity 31(1): 48-60.
- Hornaday, William T.
1887 The Extirpation of the American Bison. Report of the National Museum, 1887. Washington, D.C.
- Horton, L.E.
1972 An Ecological Analysis of the Idaho Primitive Area. Report on file at U.S.D.A.-Forest Service, Ogden.
- Hultkrantz, Ake
1957 The Indians in Yellowstone Park. Annals of Wyoming 29(2): 125-149.

1961 The Shoshones in the Rocky Mountain Area. Annals of Wyoming 33(1): 19-41.
- Husted, Wilfred M.
1963 A Rock Alignment in the Colorado Front Range. Plains Anthropologist 8(22):221-223.

1969 Bighorn Canyon Archaeology. Smithsonian Institution River Basin Surveys Publications in Salvage Archaeology 12. Washington.
- Huth, Hans
1957 Nature and the American: Three Centuries of Changing Attitudes. Berkeley: University of California Press.
- Idaho Historical Society
1960 Idaho Gold Production, 1860-1866. Reference Series 6. Boise.
1962 Four Stages in Idaho's Mining Development. Reference Series 4.
1963 Pacific Northwest Boundaries, 1848-1868. Reference Series 104.
1964a Census of 1863. Reference Series 129.
1964b 1864 Census. Reference Series 130.
1964c Placer Mining Methods. Reference Series 99.
1964d Roosevelt and Roosevelt Lake. Reference Series 21.

Idaho Historical Society, continued

- 1965a Exploration and Settlement of Salmon River. Reference Series 242.
- 1965b The Loon Creek Mines. References Series 366.
- 1965c The Yankee Fork Mines. Reference Series 204.
- 1966 Thunder Mountain. Reference Series 20.
- 1969 Early Lemhi County. Reference Series 329 (cited as 1969b).
- 1970a Fur Trade Posts in Idaho. Reference Series 62.
- 1970b Mining in Idaho. Reference Series 9.
- 1971 List of Army Battles and Military Events in Idaho. Reference Series 59 (cited as 1971b).
- 1973 Idaho Fur Trade. Reference Series 444.

Idaho, State of

- 1977 Idaho Almanac. Boise: Idaho Division of Tourism and Industrial Development.

Irving, Washington

- 1961 The Adventures of Captain Bonneville, U.S.A., in the Rocky Mountains and the Far West, edited by Edgeley W. Todd. Norman: University of Oklahoma Press.

Irwin-Williams, Cynthia, Henry Irwin, George Agogino, and C. Vance Haynes

- 1973 Hell Gap: Paleo-Indian Occupation on the High Plains. Plains Anthropologist 18(59): 40-53.

Jennings, Jesse D.

- 1973 The Short Useful Life of a Simple Hypothesis. Tebiwa 16(1): 1-9.

Jennings, Jesse D. and Edward Norbeck

- 1955 Great Basin Prehistory: A Review. American Antiquity 21(1): 1-11.

Johnson, Ann M.

- 1971 Prehistoric Habitation Patterns in the Flathead Drainage, Montana. Northwest Anthropological Research Notes 7(1): 87.

Keeler, Robert W.

- 1973 An Upland Hunting Camp on the North Fork of the Clearwater River, North Central Idaho. Occasional Papers of the Idaho State University Museum 30.

- Kehoe, Thomas F.
 1960 Stone Tipi Rings in North-Central Montana and the Adjacent Portion of Alberta, Canada: Their Historical, Ethnological, and Archaeological Aspects. Bureau of American Ethnology Bulletin 173: 417-474.
- 1966 The Small Side-notched Point System of the Northern Plains. American Antiquity 31(6).
- Keyser, James D.
 1975 A Shoshonean Origin for the Plains Shield Bearing Warrior Motif. Plains Anthropologist 20(69): 207-215.
- 1979 Variations in Stone Ring Use at Two Sites in Central Montana. Plains Anthropologist 24 (84): 133-143.
- Keyser, James D. and George C. Knight
 1976 The Rock Art of Western Montana. Plains Anthropologist 21(71): 1-13.
- Kiver, Eugene P.
 1974 Holocene Glaciation in the Wallowa Mountains, Oregon. Geographical Monographs 5: 169-195. Toronto.
- Knoll, Kenneth M.
 1973 Detailed Alpine Glacial Chronology from Central Lemhi Range, Idaho. Geological Society of America Abstracts, Rocky Mountain Section 5(6): 148.
- Knudson, Ruthann
 1973 Organizational Variability in Late Paleo-Indian Assemblages. Ph.D. dissertation, Washington State University.
- 1979 Statement of Dr. Ruthann Knudson, Resource Management Archaeologist, Univeristy of Idaho, Moscow, Idaho. Senate Report No. 96-30: 62-66. Washington, D.C.
- Knudson, Ruthann and Frank C. Leonhardy
 1978 Paleo-Indian Cultural Patterns Across the Northern Plains. Paper presented at the 36th Plains Conference, Denver.
- Knudson, Ruthann, Darby Stapp, Steven Hackenberger, William D. Lipe, and Mary P. Rossillon (cited as Knudson et al.)
 1982 A Cultural Resource Reconnaissance in the Middle Fork Salmon River Basin, Idaho, 1978. To be published in the University of Idaho Anthropological Research Manuscript Series.
- Lamb, Sydney M.
 1958 Linguistic Prehistory in the Great Basin. International Journal of American Linguistics 24(2): 95-100.
- Larson, Kermit and Collis Lovely
 1972 Idaho Primitive Area Study: Soil and Water Resource Inventory. Report on file at U.S.D.A.-Forest Service, Ogden.

Leonhardy, Frank C.

1968 An Opinion on Archaeological Interpretation in the Plateau. Eastern New Mexico University Contributions in Anthropology 1(3): 27-31.

1975 The Lower Snake River Culture Typology--1975: Leonhardy and Rice Revisited. Paper presented at the 28th Northwest Anthropological Conference, Seattle.

Leonhardy, Frank and David G. Rice

1970 A Proposed Culture Typology for the Lower Snake River Region, Southeastern Washington. Northwest Anthropological Research Notes 4(1): 1-29.

Leonhardy, Frank C., Gerald Schroedl, Judith Bense, and Seth Beckerman

1971 Wexpusnime (45GA61): Preliminary Report. Laboratory of Anthropology, Washington State University, Reports of Investigations 49.

Lewis, Mont E.

1974 Species List for the Central Idaho Timberlands. Report on file at U.S.D.A.-Forest Service, Ogden.

Liljeblad, Sven

1957 Indian Peoples in Idaho. Manuscript on file at Idaho State University.

1959 Indian People in Idaho. In History of Idaho, by M.D. Beal and M.W. Wells, Volume 1. New York: Lewis Historical Publishing Co. Inc. Pp. 29-59.

1972 The Idaho Indians in Transition, 1805-1960. Special Publication of the Idaho State University Museum. Pocatello.

Lipe, William D.

1974 A Conservation Model for American Archaeology. The Kiva 39(3-4): 213-245.

1975 Wilderness and Archaeological Conservation. Paper presented at Society for American Archaeology Annual Meeting, Dallas. (A published version of this paper appears in D. Green, 1975, cited above).

1978 The Southwest. In Ancient Native Americans, edited by Jesse D. Jennings. San Francisco: W.H. Freeman and Co.

Lowie, Robert H.

1909 The Northern Shoshone. Anthropological Papers of the American Museum of Natural History 2(2): 169-306.

1924 Notes on Shoshonean Ethnography. Anthropological Papers of the American Museum of Natural History 20: 185-314.

- Luebbert, Nancy
 1978a Cultural Resource Evaluation of the General Custer Tramway Bull Gear. Yankee Fork Ranger District, Challis National Forest. Report CRM-CH-51, on file at Challis National Forest.
- 1978b Cultural Resource Evaluation of the Livery Stable Project, Custer Townsite. Yankee Fork Ranger District, Challis National Forest. Report CRM-CH-50, on file at Challis National Forest.
- 1978c History of the Yankee Fork Mining District, Custer County, Idaho. Undergraduate honors thesis, Dartmouth College. Copy on file, U.S.D.A.-Forest Service, Boise.
- Lyon, L. Jack and Peter F. Stickney
 1976 Early Vegetal Succession Following Large Rocky Mountain Wildfires. Proceedings of the Montana Tall Timbers Fire Ecology Conference and Fire and Land Management Symposium 14: 355-375.
- Madsen, Brigham D.
 1979 The Lemhi: Sacajawea's People. Caldwell, Idaho: The Caxton Printers, Ltd.
- 1980 The Northern Shoshone. Caldwell, Idaho: The Caxton Printers, Ltd.
- Madsen, David B. and Michael S. Berry
 1975 A Reassessment of Northeastern Great Basin Prehistory. American Antiquity 40(4): 391-405.
- Malouf, Carling
 1961 The Tipi Rings of the High Plains. American Antiquity 26(3): 381-389.
- Markley, Sylvia
 1978 Cultural Resource Evaluation of the McKenzie House Project, Custer Townsite, Yankee Fork Ranger District, Challis National Forest. Report on file, Challis National Forest.
- 1979 Cultural Resource Evaluation of the Charlie Raine Cabin, Yankee Fork Ranger District, Challis National Forest. Report CRM-CH-55, on file at Challis National Forest.
- Markley, Sylvia A. and Barton G. Nordling
 1979 Cultural Resource Evaluation of the Brockman Residence in Custer Townsite, Yankee Fork Ranger District, Challis National Forest. Report CRM-CH-54, on file at Challis National Forest.
- Marshall, Alan G.
 1977 Nez Perce Social Groups: An Ecological Interpretation. Unpublished Ph.D. dissertation, Washington State University.
- Martin, Alexander C., Herbert S. Zim, and Arnold L. Nelson
 1951 American Wildlife and Plants--A Guide to Wildlife Food Habits New York: Dover Publications, Inc. (1961 reprint).

- Marti, Duane
1977 Jim Moore Place. Unpublished National Register of Historic Places nomination form, on file at Salmon National Forest.
- Marwitt, J.P., G.F. Fry, and J.M. Adovasio
1971 Sandwich Shelter. University of Oregon Anthropological Papers 1: 27-36.
- McDaniel, Marion
1978a Cultural Resource Inventory of the Challis Creek Lakes Road Reconstruction Project for the Pine Summit Timber Sale, Challis Ranger District, Challis National Forest. Report CRM-CH-26, on file at Challis National Forest.
- 1978b Cultural Resource Inventory of the Lick Creek Timber Sale and Road Reconstruction Project, Challis Ranger District, Challis National Forest. Report on file at Challis National Forest.
- 1978c Cultural Resource Inventory of the Little Bayhorse Lake Dam Project, Challis National Forest, Yankee Fork Ranger District. Report CRM-CH-23, on file at Challis National Forest.
- 1978d Cultural Resource Inventory of the Road Reconstruction for the Cinnebar Cow Trough Timber Sale, Challis National Forest, Yankee Fork Ranger District. Report CRM-CH-20, on file at Challis National Forest.
- 1979a Cultural Resource Inventory of the Annie Rooney Timber Sale. Challis Ranger District, Challis National Forest. Report CRM-CH-45 on file at Challis National Forest.
- 1979b Cultural Resource Inventory of the Cypress Mines Mineral Exploration Roads and Drill Sites, Yankee Fork Ranger District, Challis National Forest. Report CRM-CH-39, on file at Challis National Forest.
- 1979c Cultural Resource Inventory of the L.L. Anderson's Placer Project, Yankee Fork Ranger District, Challis National Forest. Report CRM-CH-37, on file at Challis National Forest.
- 1979d Cultural Resource Update of the Thompson Creek - Cyprus Mine Project, Yankee Fork Ranger District, Challis National Forest. Report CRM-CH-47, on file at Challis National Forest.
- McDaniel, Marion and Jerry Wylie
1979 Cultural Resource Evaluation of the Sater Cabin--Little Creek, Middle Fork Ranger District, Challis National Forest. Report CRM-CH-46, on file at Challis National Forest.
- McHugh, Tom
1972 The Time of the Buffalo. New York: Alfred A. Knopf.
- McKee, Harley J.
1970 Recording Historic Buildings. Washington: Government Printing Office.

- Mears, Brainerd, Jr.
1981 Periglacial Wedges and the Late Pleistocene Environment of Wyoming's Intermontane Basins. Quaternary Research 15(2): 171-198.
- Mehring, Peter J., Jr., Stephen F. Arno, and Kenneth L. Petersen
1977 Postglacial History of Lost Trail Pass Bog, Bitterroot Mountains, Montana. Arctic and Alpine Research 9(4): 345-368.
- Miller, Wick R.
1966 Anthropological Linguistics in the Great Basin. Desert Research Institute Technical Report Series S-H, Social Sciences and Humanities Publications 1: 75-112. Reno.
- Miner, M.W.
1897 Idaho Notes. Recreation 7(4): 301-302.
- Minore, Don and Michael E. Dubrasich
1978 Big Huckleberry Abundance as Related to Environment and Associated Vegetation Near Mount Adams, Washington. U.S.D.A.-Forest Service Research Note PNW-322.
- Moodie, D.W. and Arthur J. Ray
1976 Buffalo Migrations in the Canadian Plains. Plains Anthropologist 21(71): 45-52.
- Mooney, James
1894 (Unknown report--cited in Stewart 1966:217, below, for data on Nez Perce boundaries).
- Mulloy, William
1958 A Preliminary Historical Outline for the Northwestern Plains. University of Wyoming Publications 22(1).
- Murphy, Robert F. and Yolanda Murphy
1960 Shoshone-Bannock Subsistence and Society. University of California Anthropological Records 16(7): 293-338.
- Nash, Roderick
1973 Wilderness and the American Mind, Revised Edition. New Haven: Yale University Press.
- Nelson, Charles M.
1969 The Sunset Creek Site. Laboratory of Anthropology, Washington State University, Report of Investigations 47.
- Nelson, Charles M. and David G. Rice
1969 Archaeological Survey and Test in the Asotin Dam Reservoir Area, Southeastern Washington. Report on file at Washington State University Laboratory of Anthropology.

- Nordling, Barton G.
 1979a Cultural Resource Evaluation, Custer Museum Mining Display Area, Custer Museum, Yankee Fork Ranger District, Challis National Forest (revised). Report CRM-CH-56 on file at Challis National Forest.
- 1979b Preliminary Evaluation of Custer Museum Onan Diesel Generator and Wiring, Yankee Fork Ranger District, Challis National Forest. Report CRM-CH-53 on file at Challis National Forest.
- 1979c Cultural Resource Evaluation of the Lucky Boy Hoist Winch, Yankee Fork Ranger District, Challis National Forest. Report CRM-CH-52 on file at Challis National Forest.
- O'Connor, Frank A.
 1974 Final Report of the Dancing Cat Site (10CR233). Contract report, U.S.F.S. #50-781; copy on file at Boise National Forest.
- Osborne, Douglas
 1957 Excavations in the McNary Reservoir Basin Near Umatilla, Oregon. Bureau of American Ethnology Bulletin 166.
- Parke, Adelia
 1955 Memoirs of an Old Timer. Weiser, Idaho: Signal-American Printers.
- Parker, Aaron F.
 1968 Forgotten Tragedies of an Indian War. Idaho County Free Press, Grangeville.
- Pavesic, Max
 1978 Archaeological Overview of the Middle Fork of the Salmon River Corridor, Idaho Primitive Area. Boise State University, Archaeological Reports 3.
- Perry, Richard J.
 1980 The Apachean Transition from the Subarctic to the Southwest. Plains Anthropologist 25(90): 279-296.
- Petersen, Nick
 1979a Cultural Resource Inventory of the South Fork Salmon River Satellite Facility, Cascade Ranger District, Boise National Forest. Report CRM-BS-68 on file at Boise National Forest.
- 1979b Preliminary Report, Archaeological Test, South Fork Salmon River, Satellite Facility, Site No. BS-266. Cascade Ranger District, Boise National Forest. Report CRM-BS-70 on file at Boise National Forest.
- Phillips, T.A.
 1972 Idaho Primitive Area Study: Wildlife. Report on file at U.S.D.A.-Forest Service, Ogden.

- Pint, Donald J.
 1978a Cultural Resource Inventory of the Corn Creek Timber Sale, Salmon National Forest, North Fork Ranger District. Report CRM-SL-70 on file at Salmon National Forest
- 1978b Cultural Resource Inventory of the Cove Creek Campground Development, Salmon National Forest, North Fork Ranger District. Report on file at Salmon National Forest.
- 1978c Cultural Resource Inventory of the Craggs Campground Improvements, Cobalt Ranger District, Salmon N.F. Report CRM-SL-78 on file at Salmon National Forest.
- 1978d Cultural Resource Inventory of the Long Tom Shaded Fuel Break, Salmon National Forest, North Fork Ranger District. Report CRM-SL-80 on file at Salmon National Forest.
- Platts, William S.
 1972 Idaho Primitive Area Study: Fisheries. Report on File at U.S.D.A.-Forest Service, Ogden.
- 1979 Relationships among Stream Order, Fish Populations, and Aquatic Geomorphology in an Idaho River Drainage. Fisheries 4(2): 5-9.
- Plew, Mark
 1979 Southern Idaho Plain: Implications for Fremont-Shoshoni Relationships in Southwestern Idaho. Plains Anthropologist 24(86): 329-335.
- Pomeroy, Earl
 1965 The Pacific Slope. Seattle: University of Washington Press.
- Powers, William Roger
 1969 Archaeological Excavations in Willow Creek Canyon, Southeastern Idaho 1966. Occasional Papers of the Idaho State University Museum 25.
- Powers, H.A. and R.E. Wilcox
 1964 Volcanic Ash from Mount Mazama (Crater Lake) and from Glacier Peak. Science 14(3624: 1334-1336.
- Preston, R.N,
 1978 Early Idaho Atlas, Second Edition. Portland: Binford and Mort.
- Prince, Patricia
 1977 Vulcan Hotsprings--Proposed Geothermal Plant, Cultural Resource Inventory Report BS-9. Report on file at Boise National Forest.
- Quigg, J. Michael
 1978 Winter Bison Procurement in Southwestern Alberta. Plains Anthropologist Memoir 14: 53-57.

- Quigg, J. Michael
1979 Comments on the Significance of Stone Circle Excavations in Alberta. Plains Anthropologist 24(85): 261-266.
- Randolph, Joseph E. and Max Dahlstrom
1977 Archaeological Test Excavations at Bernard Creek Rockshelter. University of Idaho Anthropological Research Manuscript Series 42.
- Ranere, Anthony James
1971 Stratigraphy and Stone Tools from Meadow Canyon, Eastern Idaho. Birch Creek Papers #4. Occasional Papers of the Idaho State University Museum 27.
- Ranere, Anthony J., Joan C. Ranere, and John Lortz (cited as Ranere et al.)
1969 The Monida Pass Tipi Ring Site. Tebiwa 12(1): 39-46.
- Ray, Verne F.
1939 Cultural Relations in the Plateau of Northwestern America. Publications of the Frederick Webb Hodge Anniversary Publication Fund, Volume 3. Los Angeles.
- Rees, John E.
1918 Idaho: Chronology, Nomenclature, Bibliography. Chicago: W.B. Conkey Co.
- Reeves, Brian
1973 The Concept of an Altithermal Cultural Hiatus in Northern Plains Prehistory. American Anthropologist 75(1): 1221-1253.
1978 Bison Killing in the Southwestern Alberta Rockies. Plains Anthropologist Memoir 14.
- Reher, Charles A.
1977 Adaptive Process on the Shortgrass Plains. In For Theory Building in Archaeology, edited by L.R. Binford. New York: Academic Press. Pp. 13-40.
- Rich, E.E.
1950 Peter Skene Ogden's Snake Country Journals, 1824-25 and 1825-26. London: The Hudson's Bay Record Society.
- Richmond, Gerald M.
1965 Glaciation of the Rocky Mountains. In The Quaternary of the United States, edited by H.E. Wright and D.G. Frey. Princeton: Princeton University Press. Pp. 217-230.
- Rominger, Dale H.
1979 High Altitude Aboriginal Occupation in Southwestern Montana. Unpublished M.A. thesis, University of Montana.
- Ross, Alexander
1924 The Fur Hunters of the Far West, edited by M.M. Quaife. Chicago: The Lakeside Press.

- Ross, Clyde P.
1929 Early Pleistocene Glaciation in Idaho. United States Geological Survey Professional Paper 158-G: 123-128.
- Rossillon, Mary P.
1981 An Overview of History in the Drainage Basin of the Middle Fork of the Salmon River. U.S.D.A.-Forest Service Intermountain Region, Cultural Resource Report 6. (also cited as 1978).
- Rossillon, Mitzi (Mary P.) and Roderick Sprague
1978 An Historic Archaeological Survey on Cabin Creek Ranch. Report CRM-PY-41 on file at Payette National Forest.
- Rostlund, Erhard
1952 Freshwater Fish and Fishing in Native North America. University of California Publications in Geography 9.
- Ruebelman, George N.
1978 The Weis Rockshelter: A Problem in Southeastern Plateau Chronology. Northwest Anthropological Research Notes 12(1): 9-16.
- Rusco, Mary
1976 Fur Trappers in Snake Country: An Ethnohistoric Approach to Recent Environmental Change. Nevada Archaeological Survey Research Paper 6: 152-173.
- Rydberg, P.A.
1922 Flora of the Rocky Mountains and Adjacent Plains. New York: Hafner Publishing Co.
- Sappington, Robert Lee
1981 Obsidian Procurement Along the Middle Fork of the Salmon River in Central Idaho. Appendix G in "A Cultural Resource Reconnaissance in the Middle Fork Salmon River Basin, Idaho, 1978," by Knudson et al., 1981 (cited above).
- Sargeant, Kathryn Estel
1973 Final Report on the Archaeology of the Redfish Overhang Site 10-CR-201, Sawtooth National Forest, Cassia County, Idaho. Report on file at U.S.D.A.-Forest Service, Ogden.
- Schalk, Randall F.
1977 The Structure of an Anadromous Fish Resource. In For Theory Building in Archaeology, edited by L.R. Binford. New York: Academic Press. Pp. 207-249.
- Schroeder, Albert H.
1963 Comment on Gunnerson's "Plateau Shoshonean Prehistory." American Antiquity 28(4): 559-560.

- Schroedl, Gerald F.
 1971 The Association of Bison Remains with Cultural Assemblages of Post-Altithermal Age in the Columbia Plateau of Washington. Paper presented at the 36th Society for American Archaeology Annual Meeting, Norman, Oklahoma.
- 1973 The Archaeological Occurrence of Bison in the Southern Plateau. Washington State University Laboratory of Anthropology Reports of Investigations 51.
- Schwede, Madge L.
 1966 An Ecological Study of Nez Perce Settlement Pattern. Unpublished M.A. thesis, Washington State University.
- 1970 The Relationship of Aboriginal Nez Perce Settlement Patterns to Physical Environment and to Generalized Distribution of Food Resources. Northwest Anthropological Research Notes 4(2): 129-135.
- Scribner, S.C.
 1931 Idaho Primitive Area Report. Report on file at U.S.D.A.-Forest Service, Ogden.
- Sharrock, Floyd W.
 1966 Prehistoric Occupation Patterns in Southwest Wyoming and Cultural Relationships with the Great Basin and Plains Culture Areas. University of Utah Anthropological Papers 77.
- Shawley, Stephen D.
 1977 Nez Perce Trails. University of Idaho Anthropological Research Manuscript Series 44.
- Shepard, Paul
 1967 Man in the Landscape: A Historic View of the Esthetics of Nature. New York: Alfred A. Knopf.
- Simms, Steven R.
 1980 Archeological Survey in the Bayhorse Mining District, Custer Co., Idaho. Archeological Center, Department of Anthropology, University of Utah Reports of Investigations 80-11.
- Simpson, Charles D. and E.R. Jackman
 1967 Blazing Forest Trails. Caldwell, Idaho: The Caxton Printers, Ltd.
- Sisson, David A.
 1981 Cultural Resource Inventory and Interim Protection Plan for the Lower Salmon River. Report on file at Bureau of Land Management, Cottonwood, Idaho.
- Smith, Dwight R.
 1954 The Bighorn Sheep in Idaho. Wildlife Bulletin 1, Idaho Department of Fish and Game.

- Smith, H.W., R. Okazaki, and C.R. Knowles
1977 Electron Microprobe Data for Tephra Attributed to Glacier Peak, Washington. Quaternary Research 7(2): 197-206.
- Smith, William C.
1977 Archaeological Explorations in the Columbia Basin. Central Washington Archaeological Survey, Department of Anthropology, Central Washington University. Ellensburg. (cited as 1975).
- Spaulding, Kenneth A. (editor)
1956 The Fur Hunters of the Far West, by Alexander Ross, 1855. Norman: University of Oklahoma Press.
- Spinden, Herbert J.
1908 The Nez Perce Indians. American Anthropological Association Memoirs 2: 165-274.
- Statham, Dawn S.
1975 A Biogeographical Model of Camas and its Role in the Aboriginal Economy of the Northern Shoshone in Idaho. Tebiwa 18(1): 59-80.
- Steen, Virginia
1965 Effects of Weathering Environment on the Refractive Index of Pumice Glass from Glacier Peak, Washington, and Mount Mazama (Crater Lake), Oregon. Unpublished M.S. thesis, Washington State University.
- Steen, Virginia and Roald Fryxell
1965 Mazama and Glacier Peak Pumice Glass: Uniformity of Refractive Index After Weathering. Science 150(3698): 878-880.
- Stelfox, John G.
1976 Range Ecology of Rocky Mountain Bighorn Sheep. Canadian Wildlife Service Report Series 39.
- Steward, Julian
1938 Basin-Plateau Aboriginal Socio-Political Groups. Bureau of American Ethnology Bulletin 120.
- Stewart, Omer
1957 Maps placed in evidence in the Shoshone Case Dockets 326 and 327, Denver; Indians Claims Commission.

1966 Tribal Distributions and Boundaries in the Great Basin. Desert Research Institute Technical Report Series S-H, Social Sciences and Humanities Publications 1: 167-237.
- Stryd, Arnoud
1971a A Speculative Framework for Plateau Prehistory. In Aboriginal Man and Environments on the Plateau of Northwest America, edited by A.H. Stryd and R.A. Smith. Calgary: The Students' Press. Pp. 7-13.

Stryd, Arnoud, continued

- 1971b An Archaeological Research Design for the Investigation of Pithouse Anthropology. In Aboriginal Man and Environments on the Plateau of Northwest America, edited by A.H. Stryd and R.A. Smith. Calgary: The Students' Press. Pp. 36-42.

Swanson, Earl H., Jr.

- 1958a Archaeological Survey of the Crevice Reservoir, Idaho. Report on file, Idaho State University.
- 1958b Archaeological Survey of the Middle Fork of the Salmon River, Idaho. Copy of report on file at U.S.D.A.-Forest Service, Boise National Forest.
- 1962a Early Cultures in Northwestern America. American Antiquity 28(2): 151-158.
- 1962b The Emergence of Plateau Culture. Occasional Papers of the Idaho State College Museum 8.
- 1965 Archaeological Explorations in Southwestern Idaho. American Antiquity 31(1): 24-37.
- 1966 The Geographic Foundations of Desert Culture. Desert Research Institute Technical Report Series S-H, Social Sciences and Humanities Publications 1. Reno.
- 1970 Ecology in the Great Basin-Plateau Regions. Northwest Anthropological Research Notes 4(1): 75-81.
- 1972 Birch Creek: Human Ecology in the Cool Desert of the Northern Rocky Mountains, 9000 B.C.-A.D. 1850. Pocatello: Idaho State University Press.
- 1974 The Idea of an American Archaic. Tebiwa 17(1): 94-96.

Swanson, Earl H., Jr., and Alan Lyle Bryan

- 1964 An Archaeological Reconnaissance in the Birch Creek Valley of Eastern Idaho. Birch Creek Papers No. 1. Occasional Papers of the Idaho State University Museum 13.

Swanson, Earl H., Jr., B. Robert Butler, and Robson Bonnichsen

- 1964 Birch Creek Papers No. 2. Natural and Cultural Stratigraphy in the Birch Creek Valley of Eastern Idaho. Occasional Papers of the Idaho State University Museum 14.

Swanson, Earl H. Jr., Chester King, and James Chatters

- 1969 A Settlement Pattern in the Foothills of East-Central Idaho. Tebiwa 12(1): 31-38.

Swanson, Earl H., Jr., and Guy Muto

- 1975 Recent Environmental Changes in the Northern Great Basin. Tebiwa 18(1): 49-57.

- Swanson, Earl H., Jr., and Paul G. Sneed
1966 Birch Creek Papers No. 3: The Archaeology of the Shoup Rockshelters in East Central Idaho. Occasional Papers of the Idaho State University Museum 17.
- Swanton, John R.
1952 Indian Tribes of North America. Bureau of American Ethnology Bulletin 145. Washington, D.C.: Government Printing Office.
- Swisher, Lawrence A.
1973 The 1972 Salmon River Archaeological Survey Final Report. Report on file at U.S.D.A.-Forest Service, Ogden
- Thomas, Jack Ward (editor)
1979 Wildlife Habitats in Managed Forests. U.S.D.A.-Forest Service Agricultural Handbook 553. Washington, D.C.
- Thwaites, Reuben Gold (editor)
1904-5 Original Journals of Lewis and Clark. New York: Dodd, Mead and Co.
- Townsend, John Kirk
1978 Narrative of a Journey Across the Rocky Mountains to the Columbia River (1839). Lincoln: University of Nebraska Press.
- United States Congress
1979 Senate Report 96-414.
- U.S.D.A.-Forest Service
1969 River Plan for the Middle Fork Salmon Wild and Scenic River. Federal Register 34(192): 15572-15575.
1976a A Proposal for the Salmon River--Idaho. Washington, D.C.
1976b Idaho Primitive Area Management Plan. Report on file, U.S.D.A.-Forest Service, Ogden.
1978 A Proposal: River of No Return Wilderness. Typescript. Copy on file at U.S.D.A.-Forest Service, Boise.
- U.S. Department of Agriculture-U.S. Department of Interior
1970 Guidelines for Evaluating Wild, Scenic and Recreational River Areas for Inclusion in the National Wild and Scenic Rivers System under Section 2, Public Law 90-542. Typescript.
- U.S. Department of Interior
1979 National Register of Historic Places, Annual Listing of Historic Properties. Federal Register 44(26): 7415-7649.
1981a National Register of Historic Places, Annual Listing of Historic Properties. Federal Register 46(22): 10622-10679.
1981b National Wild and Scenic Rivers System; Draft Guidelines for Eligibility, Classification and Management of River Areas. Federal Register 46(18): 9148-9158.

- Vlasich, James A.
1980 The History of the Bayhorse Mining District. Archeological Center, Department of Anthropology, University of Utah, Reports of Investigations 80-11.
- Walker, Deward E., Jr.
1967 Mutual Cross-Utilization of Economic Resources in the Plateau: An Example from Aboriginal Nez Perce Fishing Practices. Washington State University Laboratory of Anthropology Report of Investigations 41.
1978 Indians of Idaho. MNow: The University Press of Idaho.
- Warren, Claude N.
1960 Housepits and Village Patterns in the Columbia Plateau and Southwestern Washington. Tebiwa 3(1-2): 25-28.
1968 The View from Wenas: A Study in Plateau Prehistory. Occasional Papers of the Idaho State University Museum 24.
- Warren, Claude N., Cort Sims, and Max G. Pavesic
1968 Cultural Chronology in Hells Canyon. Tebiwa 11(2): 1-37.
- Warren, Claude N., Kent S. Wilkinson and Max G. Pavesic
1971 The Midvale Complex. Tebiwa 14(2): 39-71.
- Wedel, Waldo R.
1978 The Prehistoric Plains. In Ancient Native Americans, edited by Jesse D. Jennings. San Francisco: W.H. Freeman and Co. Pp. 183-219.
- Wegars, Priscilla and Roderick Sprague
1981 Archaeological Salvage of the Joso Trestle Construction Camp, 45-FR-51, Lower Monumental Project. University of Idaho Anthropological Research Manuscript Series 65.
- Weide, David L.
1976 The Altithermal as an Archaeological "Non-Problem" in the Great Basin. Nevada Archaeological Survey Research Paper 8: 174-184.
- Wendorf, Fred and James J. Hester
1962 Early Man's Utilization of the Great Plains Environment. American Antiquity 28(2): 159-171.
- Wengert, Norman and A.A. Dyer
1979 The "Purposes" of the National Forests--A Historical Re-Interpretation of Policy Development. Ft. Collins, Colorado: Colorado State University.
- Williams, Glyndwr
1971 Peter Skene Ogden's Snake Country Journals, 1827-28 and 1828-29. London: The Hudson's Bay Record Society.
- Wilson, Mary Audley
1981 The Rocky Mountain Cabin. M.A. thesis, University of Idaho.

- Wright, Gary
1978 The Shoshonean Migration Problem. Plains Anthropologist 23(80): 113-137.
- Wright, Gary A. and Susanne J. Miller
1976 Prehistoric Hunting of New World Wild Sheep. In Cultural Change and Continuity, edited by C.E. Cleland. New York: Academic Press. Pp. 232-312.
- Wright, H.E., Jr., and M.L. Heinselman
1973 "Introduction" to The Ecological Role of Fire in Natural Conifer Forests of Western and Northern North America. Quaternary Research 3(3): 319-328.
- Wylie, Henry G. (Jerry)
1977 Cultural Resource Summary of the Cache Bar Recreation Facility, Salmon National Forest. Report CRM-SL-1, on file at Salmon National Forest.
- 1978a Cove Creek Timber Sale: Cultural Resource Inventory and Evaluation, North Fork Ranger District, Salmon National Forest. Report CRM-SL-87 on file at Salmon National Forest.
- 1978b Cultural Resource Evaluation of the Pfeiffer House Project--Custer Townsite, Yankee Fork Ranger District, Challis National Forest. Report CRM-CH-27 on file at Challis National Forest.
- 1979b Leadore Phosphate Leases: A Preliminary Cultural Resource Overview. Report CRM-SL-114 on file at Salmon National Forest.
- 1979c Little Creek to Jackass Flat Archeological Survey, Middle Fork Salmon River, Middle Fork Ranger District, Challis National Forest. Report CRM-CH-41 on file at Challis National Forest.
- 1980 A Cultural Resource Evaluation of the Cabin Creek Ranch. Manuscript on file at U.S.D.A.-Forest Service, Ogden.
- Wylie, Jerry and Marion McDaniel
1981a Cultural Resource Inventory of the Falconberry Ranch and Adjacent Properties along Loon Creek, Idaho. Report on File at U.S.D.A.-Forest Service, Boise.
- Wylie, Jerry and Susan Ketchum
1979 A Summary of U.S. Forest Service Cultural Resource Activities in South and Central Idaho--1978. Report on file at U.S.D.A.-Forest Service, Ogden. (cited as Wylie 1979a).
- 1980 A Summary of U.S. Forest Service Cultural Resource Activities in South and Central Idaho--1979. Report on File at U.S.D.A.-Forest Service, Ogden.
- Wylie, Jerry, Tom Scott, and Joe Gallagher
1981 Test Excavations in the River of No Return Wilderness: Preliminary Report on Waterfall Village and Big Creek Cave. Manuscript on file at U.S.D.A.-Forest Service, Ogden.

Yarber, Esther
1963 Land of the Yankee Fork. Salt Lake City: Publishers Press.

Yeckel, Carl
1971 The Sheepeater Campaign. Idaho Yesterdays 15(2): 2-9.

B. CORRESPONDENCE AND DISCUSSION NOT CITED ELSEWHERE

Bennett, Lee A.
1981 Letter dated 5/20/81.

Boreson, Keo
1981 Letter dated 6/8/81.

Gaston, Jeanette
1981 Letter dated 5/19/81.

Green, Thomas J.
1981 Letter dated 6/25/81.

Knudson, Ruthann
1981 Telephone conversation, June 1981.

Marshall, Alan G.
1981 Letter dated 6/19/81.

Pavesic, Max G.
1981 Letter dated 5/27/81.

Rice, David G.
1981 Letter dated 6/25/81; telephone conversation 7/2/81.

Sims, Cort
1981 Letter dated 5/20/81.

Sisson, David
1981 Letter dated 5/26/81.

Sprague, Roderick
1981 Letter dated 6/8/81.

Witherspoon, Y.T.
1981 Conversation in Oregon State Office, Bureau of Land Management.

Wylie, Jerry
1981 Conversations in Boise, and San Diego, April-May. Cited as Wylie 1981b.

C. REFERENCES EXAMINED, BUT NOT CITED IN THE TEXT

- Aikens, C. Melvin
1970 Toward the Recognition of Cultural Diversity in Basin-Plateau Prehistory. Northwest Anthropological Research Notes 4(1).
1972 Fremont Culture: Restatement of Some Problems. American Antiquity 37(1): 61-66.
1976 Cultural Hiatus in the Eastern Great Basin? American Antiquity 41(4): 543-550.
- Alden, W.C.
1953 Physiography and Glacial Geology of Western Montana and Adjacent Areas. United States Geological Survey Professional Paper 231.
- Antevs, Ernst
1953 Geochronology of the Deglacial and Neothermal Ages. Journal of Geology 61(3): 195-230.
- Boreson, Keo
1976 Rock Art of the Pacific Northwest. Northwest Anthropological Research Notes 10(1): 90-146.
- Brady, Cyrus Townsend
1979 Northwestern Fights and Fighters. Lincoln: University of Nebraska Press (reprint of 1907 edition).
- Butler, B. Robert
1967 A Stone Figurine from the Payette Lakes Locality, West-Central Idaho. Tebiwa 10(2): 73.
1971 Final Report on an Archaeological Reconnaissance of the White Cloud--Boulder--Pioneer Study Area, 1971. Report on file, U.S.D.A.-Forest Service, Boise.
1972 Folsom Points from the Upper Salmon River Valley. Tebiwa 15(1): 72.
1979 The Native Pottery of the Upper Snake and Salmon River Country. Paper presented at 32nd Northwest Anthropological Conference, Eugene, Oregon.
- Carlson, Roy L.
1962 Review of "The Old Cordilleran Culture in the Pacific Northwest," by B. Robert Butler. American Antiquity 27(3): 435-437.
- Cressman, Luther S.
1966 Comments on Prehistory. Desert Research Institute Technical Report Series S-H, Social Sciences and Humanities Publications 1: 275-293.

- DeBlois, Evan I.
1971 Comments on the Archeology of the White Cloud--Boulder--Pioneer Mountains of Idaho. Report on file at U.S.D.A.-Forest Service, Boise.
- Dibble, David S.
1965 Bonfire Shelter: A Stratified Bison Kill Site in the Amistad Reservoir Area, Val Verde County, Texas. Texas Archaeological Salvage Project, Miscellaneous Papers 5. Austin.
- Epperson, Terrence W.
1977 Cultural Resource Survey of the Cassia #1 Timber Sale, Twin Falls and Cassia Counties, Idaho. Archaeological Reports 13, Idaho State Museum of Natural History, Pocatello.
- Epstein, Jeremiah
1968 An Archaeological View of Uto-Aztekan Time Perspective. Idaho State University Museum Occasional Papers 22: 106-130.
- Etulain, Richard W. and Merwin Swanson
1977 Idaho History: A Bibliography. Pocatello: Idaho State University Press.
- Gaarder, Lorin R.
1967 Excavation at a Campsite on Eagle Creek (North Central Idaho). Tebiwa 10(2): 39-62.

1968 A Report on Archaeological Testing of Site 10-CW-5, Clearwater River, North-Central Idaho. Tebiwa 11(1): 60-71.
- Galbreath, Carol J.
1975 Criteria for Defining the Historic and Cultural Landscape. In Selected Papers: Conference on Conserving the Historic and Cultural Landscape. Washington, D.C.: The Preservation Press.
- Gebhard, David
1966 The Shield Motif in Plains Rock Art. American Antiquity 31(5): 721-732.
- Gunnerson, Dolores A.
1972 Man and Bison on the Plains in the Protohistoric Period. Plains Anthropologist 17(55): 1-10.
- Gunnerson, James H.
1962 Plateau Shoshonean Prehistory: A Suggested Reconstruction. American Antiquity 28(1): 41-45.
- Heizer, R.F. and M.A. Baumhoff
1970 Big Game Hunters in the Great Basin: A Critical Review of the Evidence. Contributions of the University of California Archaeological Research Facility 7: 1-12.
- Idaho Historical Society
1964 Silver Mining in Idaho. Reference Series 160.

Idaho Historical Society, continued

- 1969 Camas Prairie (Camas County). Reference Series 312.
1969 Early Mining on Wood River. Reference Series 206.
1971 Idaho Military Posts and Camps. Reference Series 63.
1972 Sawtooth Range. Reference Series 282.

Indian Claims Commission

- 1974 Docket No. 175: Findings of Fact. In Nez Perce Indians, reports of the Indian Claims Commission, 1967. New York: Garland Publishing Co. Pp. 269-453.

Kennedy, Barbara and Doris Lundy

- 1976 Rock Art Conservation: The Sprout Lake Petroglyphs. Datum 2(2).

Kornfield, Marcel

- 1980 Early Man in North American and Where to Look for Him: A Reply. Plains Anthropologist 25(90): 357-362.

Montgomery, James M.

- 1981 Stibnite Mining Project Gold Mine and Mill. Report on file at Payette National Forest.

National Trust for Historic Preservation

- 1975 Ghost Towns and Mining Camps: Selected Papers. Washaington D.C.: The Preservation Press.

Osborne, Douglas

- 1958 Western American Prehistory--An Hypothesis. American Antiquity 24(1): 47-52.

Pavesic, Max G.

- 1974 Aboriginal Man and Environment in Central Idaho. Paper presented at the Sun Valley Seminar on the Western Arts and Humanities, Sun Valley, Idaho, May. Copy on file at U.S.D.A.-Forest Service, Boise.

Pavesic, Max G., Mark G. Plew, and Roderick Sprague

- 1979 A Bibliography of Idaho Archaeology 1889-1976. Northwest Anthropological Research Notes Memoir 5 (Volume 13, Number 2, Part 2).

Ray, Verne F.

- 1938 Tribal Distribution in Northeastern Oregon. American Anthropologist 40(2): 384-395.

Ray, Verne F. and others

- 1938 Tribal Distribution in Eastern Oregon and Adjacent Regions. American Anthropologist 40(2): 384-415.

- Rice, David G.
1970 Basin-Plateau Cultural Relations in Light of Finds from Marmes Rockshelter in the Lower Snake River Region of the Southern Columbia Plateau. Northwest Anthropological Research Notes 4(1): 82-98.
- Rigg, George B. and Howard R. Gould
1957 Age of Glacier Peak Eruption and Chronology of Post-Glacial Peat Deposits in Washington and Surrounding Areas. American Journal of Science 255 (5): 341-363.
- Sanger, David
1967 Prehistory of the Pacific Northwest Plateau as seen from the Interior of British Columbia. American Antiquity 32(2): 186-197.
- Sneed, Paul G.
1971 Of Salmon and Men: An Investigation of Ecological Determinants and Aboriginal Man in the Canadian Plateau. In Aboriginal Man and Environments on the Plateau of Northwest America, edited by A.H. Strydom and R.A. Smith. Calgary: The Students' Press. Pp. 229-242.
- Steward, J.H.
1938 Linguistic Distribution and Political Groups of Great Basin Shoshoneans. American Anthropologist 39(4): 625-634.
- Swanson, Earl H., Jr.
1961 Approach to Culture History in the Pacific Northwest. Southwestern Journal of Anthropology 17(2): 140-145.
1963 A Correction for "Early Cultures in Northwestern America." American Antiquity 28(4): 560.
- Swanson, Earl H., Jr., and Paul G. Sneed
1971 Jackknife Cave. Tebiwa 14(1): 33-69.
- Taylor, Walter W.
1961 Archaeology and Language in Western North America. American Antiquity 27(1): 71-78.
- True, D.L.
1966 Archaeological Differentiation of Shoshonean and Yuman Speaking Groups in Southern California. Unpublished Ph.D. dissertation, University of California, Los Angeles.
- U.S.D.A.-Forest Service
1970 A History of the Salmon National Forest. Bound typescript on file at U.S.D.A.-Forest Service, Boise.

Appendix E

Report of the Committee on the Status of the Nation's Forests

January 1982, Forest, 1982

The Committee on the Status of the Nation's Forests was established in 1979 by the President to study the status of the nation's forests and to make recommendations to the President on the management of the forests.

The Committee's report is a study of the status of the nation's forests and the management of the forests. It is a study of the status of the nation's forests and the management of the forests. It is a study of the status of the nation's forests and the management of the forests.

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APPENDIX E

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Summary of Previous Investigations

Name(s) of Investigators: Earl H. Swanson, Jr., and John Rice

Date(s) of Research: August, 1958

Objectives of Research: To locate prehistoric archaeological sites along the Middle Fork Salmon River. This was the first such professional attempt. Work was conducted under contract to the National Park Service.

Research Techniques: Two archaeologists floated the river in rubber rafts, stopping at "likely spots" to search for sites. Several such spots near rapids were not examined because high water caused access problems. No subsurface examinations were conducted; it is not clear whether any cultural materials were collected.

Research Results: 44 sites were found, including rockshelters, villages, camps, pictographs, and features such as housepits, tipi rings, and "boulder rings" up to 35' in diameter.

Location and Nature of Collections and Reports:

Site forms are on file at the Idaho State Historical Society, Boise. An unpublished report is on file at the Forest Service Zone Office, Boise:

Swanson, Earl H., Jr.

1958 Archaeological Survey of the Middle Fork of the Salmon River, Idaho.

Map data: Location of this project is shown on Figure 14, in the text of this report, and on the master base map on file at the Salmon National Forest Headquarters, Salmon, Idaho.

Summary of Previous Investigations

Name(s) of Investigators: Earl H. Swanson, Jr.

Date(s) of Research: 1958

Objectives of Research: To locate archaeological sites that might be impacted by construction of Crevice Reservoir, on the main Salmon River.

Research Techniques: Floated the river, examining "likely places" in search of major open sites and rockshelters.

Research Results: Located 27 archaeological sites, suggested that there might be as many as 45 altogether.

Location and Nature of Collections and Reports:

Site forms presumably on file at Idaho State University. Unpublished report prepared for National Park Service:

Swanson, Earl H., Jr.

1958 Archaeological Survey of the Crevice Reservoir, Idaho

Map data: Location of this project is shown on Figure 14, in the text of this report, and on the master base map on file at the Salmon National Forest Headquarters, Salmon, Idaho.

Summary of Previous Investigations

Name(s) of Investigators: Earl H. Swanson, Jr., and crew

Date(s) of Research: 1965

Objectives of Research: To "test ideas about Northern Shoshoni prehistory" by investigating two rockshelters near Shoup, Idaho. Funded by Salmon National Forest as part of survey/salvage work related to construction of a road between Pine and Panther Creeks, on the south side of the main Salmon River.

Research Techniques: Stratigraphic excavation, sediment analysis, and artifact analysis of recovered materials.

Research Results: Both a cultural and a natural chronological sequence were inferred from sediments and cultural materials in site A (10-LH-23) and B (10-LH-63); main use during Bitterroot Phase; diversified subsistence base; chalcedony main lithic material. Work at these sites formed the basis for Swanson's inference that the Shoshoni had a long time depth in eastern Idaho; human populations from Shoup are inferred to be similar to those in Birch Creek. Over 160 projectile points were recovered, 70% of which are of the Bitterroot side-notch type.

These sites now are listed on the National Register of Historic Places.

Location and Nature of Collections and Reports:

Collections and field notes presumably are at the Idaho State University Museum, Pocatello. Published reports including Shoup data include:

Swanson, Earl H. Jr.

1972 Birch Creek: Human Ecology in the Cool Desert of the Northern Rocky Mountains, 9000 B.C.-A.D. 1850. Pocatello: Idaho State University Press.

Swanson, Earl H. Jr. and Paul Sneed

1966 Birch Creek Papers No. 3: The Archaeology of the Shoup Rockshelters in East Central Idaho. Occasional Papers of the Idaho State University Museum Number 17. Pocatello.

Map data: Location of this project is shown on Figure 14, in the text of this report, and on the master base map on file at the Salmon National Forest Headquarters, Salmon, Idaho.

Summary of Previous Investigations

Name(s) of Investigators: Lorin Gaarder

Date(s) of Research: 1965

Objectives of Research: To test excavate potential housepits at Corn Creek Campground, on the main Salmon River, to determine whether they were really housepits. Source of project support unspecified, but presumably Forest Service funds or other assistance were received.

Research Techniques: Unspecified.

Research Results: Housepits were determined to be present.

Location and Nature of Collections and Reports:

No data for the location of any collections, photographs, or field notes is given; such items may be stored at the Idaho State University Museum, Pocatello. No report as such was prepared; the work is mentioned in another (unpublished) report, on file at Forest Service Zone Office, Boise:

Gaarder, Lorin C.

1967 A Report of Test Excavations on Cunningham Bar (10-LH-125),
Salmon National Forest, 1967.

Map data: Location of this project is shown on Figure 14, in the text of this report, and on the master base map on file at the Salmon National Forest Headquarters, Salmon, Idaho.

Summary of Previous Investigations

Name(s) of Investigators: Lorin Gaarder

Date(s) of Research: 1967

Objectives of Research: To test excavate potential housepit site on Cunningham Bar, across from Corn Creek Campground on the main Salmon River. Supported by Forest Service contract.

Research Techniques: Four test pits excavated; arbitrary levels used, rudimentary stratigraphic analysis conducted.

Research Results: Cultural materials were recovered from all four test pits; at least one housepit was determined to be present. No diagnostic artifacts were recovered.

Location and Nature of Collections and Reports:

No location for collected materials, field notes or photographs is given; presumably these items are stored at the Idaho State University Museum, Pocatello. An unpublished report was prepared, and is on file at the Forest Service Zone Office, Boise:

Gaarder, Lorin C.

1967 A Report of Test Excavation on Cunningham Bar (10-LH-125), Salmon National Forest, 1967.

Map data: Location of this project is shown on Figure 14, in the text of this report, and on the master base map on file at the Salmon National Forest Headquarters, Salmon, Idaho.

Summary of Previous Investigations

Name(s) of Investigators: Richard Harrison

Date(s) of Research: 1970, 1971

Objectives of Research: To locate all locatable prehistoric archaeological sites on both banks of the main Salmon River from North Fork to Long Tom Bar, and to test various survey methods. Conducted as a Master's thesis project for Idaho State University.

Research Techniques: Pedestrian survey, collection of artifacts and lithic debitage. Aerial photographs were used along with river and topographic maps to locate sites. Artifact analysis attempted to distinguish "zones" of site density and use.

Research Results: About 300 archaeological sites were recorded, including 27 recorded by Swanson in 1958. Site types included villages, camps, caves/rockshelters, pictographs, burials, and "other." Cultural materials collected included "as many artifacts as could be found" at each site. Some sites were mapped. Lithic materials recovered included obsidian, chalcedony, and basalt. One potsherd was found across from California Creek, at site 10-LH-339. Tool types noted or collected included projectile points, grinding stones, cores, and drills.

Location and Nature of Collections and Reports:

Collected materials, maps, site forms, and photographs are located at Idaho State University, Pocatello. Two unpublished reports resulted from this work:

Harrison, Richard

1972a The Final Report of the 1971 Salmon River Archaeological Survey. Copy on file at Forest Service Zone Office, Boise.

1972b The Inventory Survey in Modern Archaeology. Master's thesis, Idaho State University, Pocatello.

Map data: Location of this project is shown on Figures 14 and 15, in the text of this report, and on the master base map on file at the Salmon National Forest Headquarters, Salmon, Idaho.

Summary of Previous Investigations

Name(s) of Investigators: Max Dahlstrom

Date(s) of Research: summer, 1971

Objectives of Research: To locate prehistoric archaeological sites within the Idaho Primitive Area, and develop a baseline inventory for further planning. Conducted under a Memorandum of Understanding with Region 4, U.S.D.A.-Forest Service.

Research Techniques: Pedestrian survey along Big Creek drainage and selected trails north and east of Big Creek, including some areas along the Middle Fork and in Bighorn Crags. 56 artifacts and 1009 pieces of debitage were collected.

Research Results: Located 66 (or 70) previously unrecorded archaeological sites, including camps, pictographs, villages, rockshelters, caves, hunting blinds, a kill site, and a possible vision quest site. Most sites were found in the Big Creek and Middle Fork canyons. Sites are inferred to be recent on the basis of a single Desert-side-notched projectile point found.

Location and Nature of Collections and Reports:

Cultural materials collected at at Idaho State University Museum, catalogued under numbers 1637-1 through 1637-65. Site forms also are on file there. An unpublished report was prepared, and a copy is on file at the Forest Service Zone Office, Boise:

Dahlstrom, Max

1972 Results of Archaeological Reconnaissance of the Idaho Primitive Area, 1971.

Map data: Location of this project is shown on Figure 14, in the text of this report, and on the master base map on file at the Salmon National Forest Headquarters, Salmon, Idaho.

Summary of Previous Investigations

Name(s) of Investigators: Max Pavesic

Date(s) of Research: 1971

Objectives of Research: To locate additional prehistoric archaeological sites along the upper portions of the Middle Fork.

Research Techniques: Unknown; probably a boat-supported trip, with a search of "likely places."

Research Results: Located at least 8 archaeological sites, as determined from data included in Knudson et al. (1981) and Pavesic's later compilation of site records (1978).

Location and Nature of Collections and Reports:

Site forms may be on file at Idaho State Historical Society, Boise; no report per se was ever completed. Data on site type and vulnerability are included in:

Pavesic, Max

1978 Archaeological Overview of the Middle Fork of the Salmon River Corridor, Idaho Primitive Area. Archaeological Reports No. 3, Boise State University, Boise.

Map data: Location of this project is shown on Figure 14, in the text of this report, and on the master base map on file at the Salmon National Forest Headquarters, Salmon, Idaho.

Summary of Previous Investigations

Name(s) of Investigators: Keo Boreson

Date(s) of Research: 1974

Objectives of Research: To locate rock art sites on the Middle Fork, Salmon River.

Research Techniques: None specified. Presumably a boat-supported examination of "likely places" or previously recorded sites.

Research Results: Located 14 rock art sites: 10-VY-81, 87, 11, 89, 90, 86; and 10-LH-303, 304, 189, 40, 185, 223, 224; and 10-IH-462.

Location and Nature of Collections and Reports:

Site forms filed at Idaho State Historical Society, Boise. No report as such was prepared; data are included in the following reports:

Boreson, Keo

1976 Rock Art of the Pacific Northwest. Northwest Anthropological Research Notes 10 (1): 90-146.

1980 Draft "Overview of the Petroglyphs and Pictographs in Idaho."

Pavesic, Max

1978 Archaeological Overview of the Middle Fork of the Salmon River Corridor, Idaho Primitive Area. Archaeological Reports No. 3, Boise State University.

Map data: Location of this project is shown on Figure 14, in the text of this report, and on the master base map on file at the Salmon National Forest Headquarters, Salmon, Idaho.

Summary of Previous Investigations

Name(s) of Investigators: Jerry Wylie

Date(s) of Research: 1977

Objectives of Research: In-house Forest Service study to locate any cultural resources that might be affected by construction of a take-out for Middle Fork float-boaters, on the main Salmon River at Cache Bar.

Research Techniques: Pedestrian survey of project area, no subsurface examination.

Research Results: Relocated Harrison's 10-LH-163, between road and river. Reports previous examinations and a test pit at this site by Pint in 1975, DeBloois in 1976. Recommended completion of the proposed construction as designed. Materials may have been collected by Harrison, Pint, and/or DeBloois, but no information is given.

Location and Nature of Collections and Reports:

No location data are provided for any cultural materials that may have been collected. An unpublished report is on file at Salmon National Forest:

Wylie, Jerry

1977 Cultural Resource Summary of the Cache Bar Recreation Facility, Salmon National Forest. Report CRM-SL-1.

Map data: Location of this project is shown on Figure 14, in the text of this report, and on the master base map on file at the Salmon National Forest Headquarters, Salmon, Idaho.

Summary of Previous Investigations

Name(s) of Investigators: Evan DeBloois

Date(s) of Research: 1977

Objectives of Research: In-house Forest Service project to test excavate and evaluate the prehistoric archaeological site at Boundary Creek Campground, in response to proposed expansion of boat launching and camping facilities.

Research Techniques: Surface collections and subsurface testing were conducted. One-centimeter levels were used for excavation; distribution of artifacts and debitage was mapped.

Research Results: Less than 5 cm. of sediment covers river greavels; distribution of cultural materials suggested sporadic use (although vandalism through the years may have biased the sample). No features were located. Lithic material reported includes both obsidian and local chalcedony. No special precautions were recommended for the proposed development project.

Location and Nature of Collections and Reports:

Cultural materials recovered are located at Forest Service Region 4 laboratory, Ogden, Utah, along with maps and photographs. Three unpublished reports on this site are on file at the Forest Service Regional Office, Ogden, Utah:

DeBloois, Evan

1976 Boundary Creek Boat Launch Site, Challis National Forest.

1977 An Investigation of Cultural Resources at the Boundary Creek Boat Launching Facility, Challis National Forest, Idaho.

Green, James P.

1975 Archaeological Evaluation of the Boundary Creek Campground Expansion and the Dagger Falls Recreation Site.

Map data: Location of this project is shown on Figure 14, in the text of this report, and on the master base map on file at the Salmon National Forest Headquarters, Salmon, Idaho.

Summary of Previous Investigations

Name(s) of Investigators: Donald J. Pint

Date(s) of Research: 1978

Objectives of Research: In-house Forest Service survey to locate any cultural resources that might be affected by construction of a proposed boat ramp and campground improvement at Cove Creek, on the main Salmon River.

Research Techniques: Pedestrian survey of project area.

Research Results: Relocated two of Harrison's sites, 10-LH-143, 144; the latter is outside of project area. Collected 6 artifacts from 10-LH-143, which has some subsurface potential. An area of mussel shell is listed as a "potential site," but no site form is included.

Location and Nature of Collections and Reports:

No location is given for artifacts collected from 10-LH-143.

An unpublished report is on file at Salmon National Forest:

Pint, Donald J.

1978 Cultural Resource Inventory of the Cove Creek Campground Development, Salmon National Forest, North Fork Ranger District.

Map data: Location of this project is shown on Figure 14, in the text of this report, and on the master base map on file at the Salmon National Forest Headquarters, Salmon, Idaho.

Summary of Previous Investigations

Name(s) of Investigators: Steve Hackenberger

Date(s) of Research: 1978

Objectives of Research: To locate any cultural resources that might be affected by construction of a bridge over Sulphur Creek, on the Middle Fork Salmon River. Apparently done as add-on to the 1978 Middle Fork survey of Knduson et al.

Research Techniques: Pedestrian survey of project area; no subsurface examination or archival research.

Research Results: Three sites located. Two historic mining sites (10-VY135, 136), represented by probable adits; one prehistoric lithic scatter (10-VY-134), including obsidian, jasper, and basalt flakes. Impact possible on 10-VY-135 if construction proceeds as designed.

Location and Nature of Collections and Reports:

Unpublished report on file at Salmon National Forest:
Hackenberger, Steve

1978 Cultural Resource Inventory of the Sulphur Creek Bridge and Trail Project, Middle Fork Ranger District, Challis National Forest. Report CRM-CH-34.

Map data: Location of this project is shown on Figure 14, in the text of this report, and on the master base map on file at the Salmon National Forest Headquarters, Salmon, Idaho.

Summary of Previous Investigations

Name(s) of Investigators: John Hartung

Date(s) of Research: 1978

Objectives of Research: To located historical cultural resources in Big Creek drainage, as part of a Master's student thesis project.

Research Techniques: Pedestrian survey, mapping, and photography were used along with some archival research and oral interviews.

Research Results: 65 sites were located, including 3 prehistoric/ethnographic archaeological sites. 10 sites were mining-related, 30 related to ranching or settlement, 12 related to Forest Service administration, and 13 were classified as "miscellaneous." The earliest historic site, Cabin Creek Ranch, dates to the 1890's.

Location and Nature of Collections and Reports:

Maps, photographs, and other documents may be on file at Forest Service Regional Office, Ogden, Utah. A report has been prepared (1980), and currently is in press:

Hartung, John Wiley

1978 Documentation of Historical Resources in the Idaho Primitive Area, Big Creek. Master's Thesis, University of Idaho, Moscow.

Map data: Location of this project is shown on Figure 14, in the text of this report, and on the master base map on file at the Salmon National Forest Headquarters, Salmon, Idaho.

Summary of Previous Investigations

Name(s) of Investigators: Ruthann Knudson, William Lipe, Steven Hackenberger, Darby Stapp, Lee Sappington, Frank Leonhardy, Mary P. Rossillon, and crew.

Date(s) of Research: summer, 1978 (field); 1978-1981 (laboratory analysis)

Objectives of Research: To locate all cultural resources associated with recreation sites (campgrounds, formal or informal) along the Middle Fork, and ascertain their present condition, significance, and future management needs. Work was conducted under terms of a memorandum between the Forest Service, University of Idaho, and the State of Idaho.

Research Techniques: Boat-supported pedestrian survey of campground locations. Major sites were mapped; some collections were made; no subsurface examinations were conducted, but site depth was estimated from visual inspection of natural exposures, and limited auger testing was conducted. Laboratory analyses included determining the sources of lithic materials collected and cursory technological analyses of flaked stone tools.

Research Results: Eighty-eight sites were recorded, 65 for the first time. Site types included historic and prehistoric camps, settlements, and use areas (including mining-related). 1337 items were collected; of the flaked stone tools and debitage, over 80% are made of obsidian from Timber Butte. Over one-third of the cultural resources located had been vandalized or disturbed by Forest Service activities; 28 sites were recommended for protection, 11 of those were judged to be high priority (including 6 historic sites). An additional 13 sites are recommended for protection if recreation use continues or increases; 9 sites were recommended for testing, with the need for future protection to be based on results of the tests.

Location and Nature of Collections and Reports:

Cultural materials collected, including site forms, photographs, negatives, and maps are currently stored at the University of Idaho Laboratory of Anthropology, in Moscow. Final repository is to be selected by the Forest Service and the State Historic Preservation Office, in accordance with terms of the agreement supporting the study.

A final report is in preparation, with the following title:

Knudson, Ruthann, Darby Stapp, Steven Hackenberger, William D. Lipe, and Mary P. Rossillon

1981 A Cultural Resource Reconnaissance in the Middle Fork Salmon River Basin, Idaho, 1978. University of Idaho Anthropological Research Manuscript Series No. 67. Moscow.

Map data: Location of this project is shown on Figure 14, in the text of this report, and on the master base map on file at the Salmon National Forest Headquarters, Salmon, Idaho.

Summary of Previous Investigations

Name(s) of Investigators: Jerry Wylie

Date(s) of Research: Fall, 1978

Objectives of Research: In-house Forest Service project to locate any cultural resources that might be impacted by a 700-acre timber sale in Cove Creek Canyon, on the main Salmon River.

Research Techniques: Pedestrian survey, limited subsurface investigation of one "feature."

Research Results: Located "feature" CC-1, including shell, flakes, possible fire-cracked rocks, and a projectile point. Feature may be related to Harrison's site 10-LH-144, nearby. Shell, flakes, and a corner-notched ignimbrite projectile point were collected. Recommends logging over frozen ground, and covering "feature" with 12 inches of culturally sterile overburden. State Historic Preservation Officer concurred. Site 10-LH-144 had been vandalized during the previous summer season.

Location and Nature of Collections and Reports:

No location given for cultural materials collected. Unpublished report on file at Salmon National Forest:

Wylie, Jerry

1978 Cove Creek Timber Sale: Cultural Resource Inventory and Evaluation, North Fork Ranger District, Salmon National Forest. Report CRM-SL-87.

Map data: Location of this project is shown on Figure 14, in the text of this report, and on the master base map on file at the Salmon National Forest Headquarters, Salmon, Idaho.

Summary of Previous Investigations

Name(s) of Investigators: Mitzi Rossillon and Roderick Sprague

Date(s) of Research: 1978

Objectives of Research: To assess the historic archaeological potential of Cabin Creek Ranch, Big Creek, Idaho, as an add-on to the Middle Fork survey being conducted by Knudson et al.

Research Techniques: Pedestrian survey, photography and mapping of existing structures and features at Cabin Creek Ranch, supplemented by archival research and oral interviews as available.

Research Results: Seven of the 37 buildings and 7 features seemed to be older than 50 years, but none seemed to be eligible for the National Register of Historic Places. Wylie's later re-evaluation of these structures states that 9 are eligible (numbers 20, 29, 30, 31, 32, 33, 34, and Features 1 and 7), along with three prehistoric archaeological sites (10-VY-49, 50, and 51). Historic archaeological potential of the area had been compromised by years of insensitive "clean-up" activity.

The Big Creek area, including the prehistoric and historic resources at Cabin Creek, has been proposed as part of a Vinegar Hill Historic District, to be nominated to the National Register of Historic Places by the State Historic Preservation Office. The status of this proposed nomination is not known at this time.

Location and Nature of Collections and Reports:

Structure forms, maps, and photographs are on file at Payette National Forest, as are at least two unpublished reports:

Rossillon, Mitzi and Roderick Sprague
n.d. (1978) An Historic Archaeological Survey on Cabin Creek Ranch.

Wylie, Jerry
1980 A Cultural Resource Evaluation of the Cabin Creek Ranch.

Map data: Location of this project is shown on Figure 14, in the text of this report, and on the master base map on file at the Salmon National Forest Headquarters, Salmon, Idaho.

Summary of Previous Investigations

Name(s) of Investigators: Marion McDaniel and Jerry Wylie

Date(s) of Research: 1979

Objectives of Research: In-house Forest Service project to evaluate Sater Cabin, built in 1906, now owned by Forest Service, adjacent to privately-owned Middle Fork Lodge near Little Creek. Cabin was proposed for adaptive use by Forest Service.

Research Techniques: Physical examination of structure, records search to establish chain of ownership. No involvement by professional historian or historical architect, except through State Historic Preservation Office review.

Research Results: Sater Cabin is not eligible for the National Register of Historic Places because inaccurate and over-zealous restorations through the years have compromised its integrity. State Historic Preservation Office concurred.

Location and Nature of Collections and Reports:

Unpublished report on file at Challis National Forest:

McDaniel, Marion, and Jerry Wylie

1979 Cultural Resource Evaluation of the Sater Cabin--Little Creek, Middle Fork Ranger District, Challis National Forest. Report CRM-CH-46.

Map data: Location of this project is shown on Figure 14, in the text of this report, and on the master base map on file at the Salmon National Forest Headquarters, Salmon, Idaho.

Summary of Previous Investigations

Name(s) of Investigators: Jerry Wylie

Date(s) of Research: 1979

Objectives of Research: In-house Forest Service survey to locate cultural resources on a "likely" terrace, on the Middle Fork Salmon River across from Sunflower Hot Springs.

Research Techniques: Pedestrian survey of 100-acre terrace surface. No subsurface examination was conducted.

Research Results: Four prehistoric archaeological sites, 10-CR-641, 642, 643, 680, characterized by flakes, fire-cracked rocks and charcoal were located. Obsidian flakes dense (6 per square meter) at 10-CR-680. No materials were collected.

Location and Nature of Collections and Reports:

An unpublished report is on file at Challis National Forest:

Wylie, Jerry

1979 Little Creek to Jackass Flat Archeological Survey, Middle Fork Salmon River, Middle Fork Ranger District, Challis National Forest. Report CRM-CH-41.

Map data: Location of this project is shown on Figure 14, in the text of this report, and on the master base map on file at the Salmon National Forest Headquarters, Salmon, Idaho.

Summary of Previous Investigations

Name(s) of Investigators: Ken Anderson

Date(s) of Research: 1979

Objectives of Research: In-house Forest Service survey to locate any cultural resources that might be affected by construction of a proposed boat ramp at Owl Creek, on the main Salmon River.

Research Techniques: Pedestrian survey, no subsurface examination.

Research Results: Relocated two rockshelters (10-LH-278, 279) and one open site (10-LH-280) recorded by Harrison in 1971. Both Harrison and Anderson collected artifacts from 10-LH-280. Harrison collected cobble tools, flakes, a flesher, and shells; Anderson collected a cryptocrystalline corner-notched projectile point. Recreationists have damaged site 10-LH-280 by use; looters have destroyed about 75% of both rockshelters. Recommended salvage of the rockshelters, increased protection of the open site.

Location and Nature of Collections and Reports:

Harrison's collections presumably now are at Idaho State University. No location is given for the projectile point collected by Anderson.

An unpublished report is on file at Salmon National Forest:

Anderson, Ken

1979 Cultural Resource Inventory, Preliminary Report Owl Creek Boat Ramp, Salmon National Forest, North Fork Ranger District. Report CRM-SL-89.

Map data: Location of this project is shown on Figure 14, in the text of this report, and on the master base map on file at the Salmon National Forest Headquarters, Salmon, Idaho.

Summary of Previous Investigations

Name(s) of Investigators: Jerry Wylie and Marion McDaniel

Date(s) of Research: 1980

Objectives of Research: To locate and assess cultural resources associated with the Falconberry Ranch properties, on Loon Creek. In-house Forest Service project.

Research Techniques: Pedestrian surface survey, mapping, and collection of some cultural materials. Some historical data were researched to ascertain date of construction and ownerships of various structures. All work was conducted by archaeologists.

Research Results: Eight prehistoric sites were recorded, and 37 historic structures, along with 17 "miscellaneous features." Partial surface collections were taken at 2 (possibly 3) prehistoric sites. Some prehistoric sites were mapped, including those with housepits. Lithic materials reported included obsidian and other materials; artifacts included projectile points, pestles, scrapers, and cores. Only one building dates to the original 1910 occupation by Euro-Americans; the rest post-date 1950. Seven of the 8 archaeological sites were assessed as "significant" or "potentially significant," but no State Historic Preservation Office review is reported.

Location and Nature of Collections and Reports:

Cultural materials collected may be stored at the Forest Service Regional Office in Ogden, Utah. An unpublished report is on file at the Forest Service Zone Office, Boise, Idaho:

Wylie, Jerry and Marion McDaniel

1981 Cultural Resource Inventory of the Falconberry Ranch and Adjacent Properties along Loon Creek, Idaho.

Map data: Location of this project is shown on Figure 14, in the text of this report, and on the master base map on file at the Salmon National Forest Headquarters, Salmon, Idaho.

Summary of Previous Investigations

Name(s) of Investigators: Jerry Wylie, Tom Scott, Joe Gallagher, and crew

Date(s) of Research: September, 1981

Objectives of Research: To test-excavate two archaeological sites to obtain subsurface data needed for planning, ascertain the research values of the sites, generate further testable hypotheses, and collect information on logistical problems expected to affect future similar projects.

Research Techniques: Excavation by 10 cm. arbitrary levels, screening through 1/4" mesh; pollen and charcoal samples were collected from one site, charcoal samples from the other.

Research Results: Site 10-VY-67, Big Creek Cave, was shown to have over a meter of dry deposits containing cultural materials (the bottom was not reached); about 50 diagnostic projectile points, and faunal and vegetable materials were recovered. The open site at Waterfall Creek (Forest Service #SL-267) was shown to have at least one housepit (tested), with at least two phases of occupation; the bottom was not reached here either. At least 13 diagnostic projectile points, along with other tools and faunal materials were recovered from the "village" site. No laboratory analysis of cultural or natural materials has yet been conducted.

Location and Nature of Collections and Reports:

No location for the recovered cultural materials and sediment samples is given. An unpublished preliminary report is on file at the Forest Service Regional Office, Ogden, Utah:

Wylie, Jerry, Tom Scott, and Joe Gallagher

1981 Test Excavations in the River of No Return Wilderness:
Preliminary Report on Waterfall Village and Big Creek Cave.

Map data: Location of this project is shown on Figure 14, in the text of this report, and on the master base map on file at the Salmon National Forest Headquarters, Salmon, Idaho.

APPENDIX F

DESCRIPTION OF MAJOR PHYSIOGRAPHIC AREAS IN IDAHO PRIMITIVE AREA

Source: Larson and Lovely 1972:3-14

Salmon River Canyon Lands

These lands comprise approximately 10 percent of the Idaho Primitive Area and occupy the slopes immediately adjacent to the main Salmon River and the lower portion of the Middle Fork of the Salmon River. Elevations range from 2,200 feet to 7,000 feet. Slopes are extremely steep, straight and very long. Slope gradients are between 50 and 90 percent and are dominantly 70 percent or greater. Soils are mostly from granitic rock and are commonly very shallow and coarse textured. Rock outcrop and rocky cliff lands are common. The climate of these lands is at one extreme on the range of conditions found in the...area. Low annual precipitation and high average temperatures produce very hot, dry, sparsely vegetated slopes. Shallow snowpacks rarely persist throughout the winter.

The north facing slopes above the main Salmon River at mid and high elevations differ greatly from the majority of this unit as just described. Topography is similar but these slopes have moderately deep soils and are densely vegetated. Precipitation is much greater and snowpacks persist throughout the winter.

Water yield production from these lands is the lowest in the ... area, averaging only 1 to 5 inches of runoff per year. Stream channels are in good to excellent condition.

...Most of the landtypes mapped in this area are oversteepened and geologically unstable. Erosion and mass failure (slides, creep) hazards are very high....

...Productivity potentials for timber are very low over almost all of the area. Erosion hazards and lower and productivity potentials are higher on the contrasting north slopes above the main Salmon River. A large portion of this unit is important big game winter range.

Upper Middle Fork Canyon Lands

This area comprises about 10 percent of the total...area. These lands occupy the slopes adjacent to the Middle Fork of the Salmon River from Bernard Creek Guard Station up river to the (Idaho Primitive Area) boundary. Elevations range from 3,600 to 8,000 feet. The remainder of the area has steep smooth slopes with shallow and moderately deep sandy soils. Slope gradients range from 40 to 80 percent but are commonly 60 percent or greater. Rock outcrop generally occurs on only the steepest slopes. Bedrock is mostly soft, well weathered granite.

Low annual precipitation and high average temperatures produce very hot, dry, sparsely vegetated slopes. The most common cover type is sagebrush and bitterbrush over short grasses. Timber is confined to north aspects in a few draws. Snowpacks are shallow and rarely persist throughout the winter.

Water yield production from these lands is also the lowest in the area...averaging only 1 to 5 inches of runoff per year. The Middle Fork stream channel is in good condition with minor bank cutting along old river terraces; however, the short steep side tributaries and steep riverbreak slopes are actively eroding due mostly to natural surface erosion and are carrying sediment directly into the Middle Fork.

...(These lands) have very high erosion and stability hazards. The soft sandy soil surface is very sensitive and is easily disturbed....This unit is heavily utilized as a big game winter range by deer and elk herds.

Rolling Basin Lands

These lands comprise 20 percent of the total and occur in the northern portion of the ... area. Elevations range from 5,500 to 7,500 feet. The topography is rolling. Local and total relief is low. Ridge tops are broad and convex. Drainageways are broad and concave. Slope gradients are generally less than 45 percent. The soils in the area have fine sandy loam surfaces over sandy subsoils. Soils are nonstony throughout and are moderately deep over soft well weathered granitic bedrock.

The climate for this large area is probably as uniform as any region in the ...area because of its general orientation and small differences in elevation. Precipitation ranges from 20 to 40 inches annually. Summers are cool and winters are cold. Morning fog is quite common in the low meadows during the summer. The abundant moisture and deep soils maintain an excellent vegetative cover of dense lodgepole pine stands and lush grassy meadows.

Water yield from this area is also quite uniform, ranging from 5 to 10 inches per year. Watershed conditions are very good and relatively stable under natural conditions over most of the area. Stream channels are mostly in good to excellent condition; however, streams in this area seem to carry a naturally high sediment load which is evidenced throughout the stream channels by the presence of numerous deposits of gravel and sand. In areas disturbed by grazing and man, stream reaches were found to be in fair to poor condition.

These lands, because of their favorable topography, are the least hazardous of any of the physiographic areas....

This unit contains extensive dense stands of lodgepole pine but due to the cold climate and infertile soil, the productivity potentials are only low and moderate. This area is a very important elk summer range.

Low Relief Fluvial Lands

This physiographic area comprises about 5 percent of the...area. These lands occur in the norther part of the...area in the middle and lower portions of the Chamberlain and McCalla Creek drainages. Topography is quite variable. Slopes are gentle and relief is low in the upper portion of the unit. Slopes are steeper and relief is much greater on the lower portion of this unit.

Soils are coarse textured and are generally nonstony and deeper than 30 inches to soft well weathered granitic bedrock. Vegetation at the higher elevations consists of fairly dense stands of ponderosa pine and Douglas-fir over tall brush and grass. Much sparser stands of ponderosa pine and Douglas-fir over scattered brush and grass are typical at lower elevations.

The steeper slopes result in a greater variation in the micro-climate of this unit than in (Rolling Basin Lands), with differences in aspect very noticeable. Annual precipitation averages about 20 inches. The climate ranges between that found in (Rolling Basin Lands) and (Salmon River Canyon Lands); however, it more closely resembles that of (the former).

Water yeild from this area is approximately 1 to 5 inches per year, one of the lowest in the...area. Waterhsed slopes adjacent to streams are steep and dry surface creep is actively moving material downslope. Stream channels are quite stable although heavy sediment loads are transported in them.

This physiographic area contains the highest percentage of lands that have...low and moderate erosion and stability hazards....

Steep Volcanic Fluvial Lands

This physiographic area comprises 20 percent of the total area and is the largest unit in the study. It is generally located in the central portion of the southern half of the ... area. Elevations range from 4,500 to 8,000 feet. The terrain is very steep and rugged. Local and total relief is great. Slope gradients are mostly bewtween 50 and 70 percent. Soils are shallow and moderately deep, medium textured, and are commonly stony on the surface and throughout the profiles. Vegetation consists of fairly dense stands of conifer forests over tall brush on north and east aspects and at the higher elevations. On south and west aspects sparse conifer forests over scattered brush and grass are common.

There is a wide range in climatic conditions within this area because of its large size and great elevational differences. Precipitation ranges from 20 to 50 inches per year. Relatively moderate to deep snowpacks are accumulated within this area.

Water yield varies from 5 to 20 inches per year. Stream channel and watershed conditions are very poor in the Monumental and upper Marble Creek drainages where many large landslides and earth flows have occurred. Watershed conditions are fairly stable in the rest of the unit; however, active surface erosion can be found on many of the lower elevation south facing slopes.

This physiographic area has a wide range of hazards and potentials. This area contains some of the most unstable lands within the survey area....

Steep Granitic Fluvial Lands

These lands comprise about 15 percent of the total...area. This area is the least contiguous of the physiographic areas. The area occurs in the extreme southern portion of the study area and in the northern portion in the South Fork of the Salmon River, and the northern portion of the Big Creek drainage. Elevations range from 4,000 feet to 7,500 feet. Terrain is very rugged, slopes are steep to very steep with local and total relief very great. Soils are formed from granitic rock and are coarse and very coarse textured. Shallow and moderately deep soils are the most common. Vegetation consists of dense stands of conifer forest over brush and grass on cool sites and sparse conifer stands over scattered brush and grass on warm sites.

The climate within this area is very difficult to discuss in general terms because of the many diverse conditions and different locations segments of this area are found in. Precipitation varies widely from 15 to 40 inches annually and moderate to heavy snowpacks are usually accumulated within this area. Water yield from this area varies from 1 to 20 inches per year. Watersheds and stream channels are generally quite stable and in good condition.

Strongly Glaciated Lands

Strongly glaciated lands comprise about 20 percent of the total...area. These lands are the glaciated mountains that occur along the entire western boundary of the study area and in the Big Horn Crags, Farrow Mountain, and Mormon Mountain areas. These are typical alpine glaciated areas. Glacial troughs, cirques, cirque lakes, and steep rocky ridges are common. Elevations range from 7,500 to 10,000 feet. Slopes are long and very steep. Slope gradients range from 50 to 80 percent. Soils are coarse textured, stony, and shallow over most of the area. Vegetation on south aspects and at high elevations consists of very sparse scattered subalpine fir, lodgepole pine, and whitebark pine over short brush and grass. At lower elevations on north and east aspects, dense conifer forests over tall brush are typical.

This area is found at the highest elevations in the study area and is at one extreme of the climatic conditions found....The area has the highest annual precipitation, 30 to 60 inches, coldest temperatures, deepest and longest lasting snowpacks, and accordingly, the shortest growing season.

These lands are also the highest water-yielding in the ... area, producing 20 to 30 inches of runoff per year. Watershed and stream channel conditions are generally good for most of the area.

...(Some landtypes) have high mass failure hazards. Productivity potentials are very low or low for most of the landtypes in this area.

APPENDIX G

Station	Location	Altitude	Year	Remarks
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FOREST SERVICE INVENTORY OF HISTORIC STRUCTURES

Number	Location	Site Name	#	Date	Remarks
BITTERROOT N.F./ WEST FORK R.D.					
Mining:					
BR-WF-5	S17T24R13	Dwyer Creek	1	ca 1938	abandoned 8-sided cabin
BR-WF-7	S27T25R12	Smith Gulch Cabin	1	1930	abandoned
BR-WF-14	S16T26R15	Storm Creek Flat	2	1916	abandoned
BR-WF-20	S7T27R15	Blondies Cabin	2	1934-36	abandoned
BR-WF-21	S11T27R15	Slow Gulch Cabin	1	1934	abandoned
Trapping:					
BR-WF-11	S27T25R13	Eakin Cabin	1	1914	abandoned; HBC axes?
BR-WF-12	S13T25R13	Swet Creek Cabin	1	1937	abandoned
BR-WF-22	S16T24R13	Eakin Cabin	1	1905	abandoned
Forest Service Management:					
BR-WF-1	S10T25R13	Swet Lake Cabin	2	1967	trail crew use
BR-WF-2	S36T27R14	Horse Heaven Cabin	1	1937	administrative use
BR-WF-3	S10T26R14	Thompson Flat Cabin	1	1930	trail crew use
BR-WF-24	S29T25R13	Elkhorn L.O.	1	1958	lookout
BR-WF-25	S3T26R13	Salmon Mtn. L.O.	1	1950	lookout
BR-WF-26	S29T27R16	Hells Half Acre LO	1	1959	lookout
BR-WF-27	S16T24R13	Lantz Bar	3	1964-5	orig. bldgs. burned 1964
Unknown condition:					
BR-WF-4	S25T27R16	Lazy Gulch Cabins	1	---	---
BR-WF-8	S15T27R12	Sabe Saddle Cabin	1	---	abandoned
BR-WF-13	S22T26R14	Swet Creek Cabin	1	1929	abandoned
BR-WF-16	S14T26R13	Arrow Camp Cabin	1	1938	abandoned
BR-WF-17	S17T25R14	Stripe Creek Cabin	1	1916	abandoned
BR-WF-18	S25T25R14	Surprise Ck. Camp	1	1910	abandoned
Structures absent:					
BR-WF-6	S15T24R13	Fawn Creek Cabin	1	1937	burned 1960's; mining
BR-WF-9	S26T26R12	Dennis Creek Cabin	1	1800's?	trapping
BR-WF-10	S3T25R13	Swet Lake Pond Cabin	1	1910	burned 1966
BR-WF-15	S27T27R14	Lunch Creek Cabin	1	---	---
BR-WF-19	S1T24R12	Elkhorn Bar Cabin	3	---	burned 1950
BR-WF-23	S14T25R12	Cabin Spring Cabin	1	---	burned 1929

Note: Date of construction for properties older than 50 years in **boldface**

Missing data are indicated in the proper column by "----"

"#" refers to number of reported structures

Location is given in Section, Township, Range order

"Remarks" include former uses, present uses, and similar items

BOISE N.F./CASCADE R.D.

Mining:

BO-C-4	S17T17R9	Black Lake Cabin	1	ca.1900	---
BO-C-5	S17T17R9	Black Lk. Cabin #2	1	ca.1900	abandoned
BO-C-6	S18T17R9	Duncan's Mine	1	1930's	used for storage
BO-C-31	S5T15R10	Lucky Lad Mine	1	1935	caretaker's house
BO-C-32	S6T15R10	Franklin D. Mine	1	1935	---
BO-C-33	S36T16R9	Cougar Mine	1	1935	---
BO-C-36	S14T15R9	Walker Mine	1	1930's	abandoned
BO-C-37	S7T15R10	Lucky Creek Cabin	1	---	---
BO-C-38	S21T15R9	Elkhorn Cabin	1	---	---
BO-C-59	S28T17R9	Springfield Mine	2+	ca. 1940	mill/bunkhouse; aban'd.

Trapping:

BO-C-39	S25T17R10	Endoah Creek Cabin	1	1930's	abandoned
BO-C-43	S27T18R11	Dynamite Ck. Cabin	1	1930's	abandoned
BO-C-49	S29T18R10	Mule Hill Cabin	1	---	abandoned
BO-C-51	S1T17R9	Big Chief Indian Cb.	1	---	---

Forest Service Management:

BO-C-1	S1T15R 8	Snowshoe Cabin	1	1920's	abandoned
BO-C-2	S10T14R9	Morehead LO	2	ca. 1930	still in use?
BO-C-3	S29T18R9	Meadowcreek LO	2	1930's	radio communications use
BO-C-55	S35T17R12	Mahoney LO	3	1936	abandoned
BO-C-56	S25T18R12	Norton Ridge LO	3	1934	abandoned
BO-C-57	S26/7T17R10	Big Baldy LO	1	1964	still in use?

Multiple Use:

BO-C-19	S22T25R9	Zaunmillers Ranch	4	ca. 1900	Pvt.; outfitter/guide
BO-C-22	S19T23R12	Root Ranch	3	ca. 1893	Pvt.; dude ranch
BO-C-24	S26T24R10	Stonebraker Ranch	2+	ca. 1895	Fish and Game camp

Unknown use:

BO-C-50	S33T18R9	Big Chief Cabin	1	ca. 1900	---
BO-C-52	S29T18R13	Norton Creek Cabin	1	---	---

Unknown condition:

BO-C-26	S35T24R10	Hotzel Ranch	?	---	F&G; USFS burned 1953
BO-C-16	S3T24R11	Queen Creek Cabin	1	---	trapping; abandoned
BO-C-23	S21T23R9	Rim Creek Cabin	1	ca. 1900	mining; abandoned
BO-C-35	S2T14R9	Morehead Lake	1	ca. 1915	trapping; abandoned
BO-C-44	S32T18R12	Gray's Creek Cabin	1	ca. 1916	farm; abandoned
BO-C-46	S34T17R12	Billy Mitchell Ranch	1+	---	F&G; F&G burned cabin
BO-C-53	S20T18R13	Norton Lake Cabin	1	ca. 1890	"Hudson's Bay cabin"

Structures absent:

BO-C-7	S31T17R9	Chilcoot LO	3	1930's	burned 1968
BO-C-8	S17T14R9	Sulphur Ck. Cow Camp	2	1920's	burned 1962
BO-C-9	S31T25R10	Burnt Knob LO	1	1920	burned 1960's
BO-C-12	S33T24R12	Root Creek Cabin	1	1917	burned 1956
BO-C-13	S16T23R12	Root's Knob LO	1	1930	burned 1960's
BO-C-25	S26T24R10	Beal Ranch	2	---	F&G destroyed 1970's
BO-C-29	S31T25R10	Snake Cabin	1	ca. 1900	deteriorated (?)
BO-C-30	S26T24R12	Grass Mt. LO	1	1920's	USFS burned 1978
BO-C-34	S35T16R10	Artillery Dome LO	4	1934	USFS burned 1965
BO-C-45	S31T18R12	Mink Creek Cabin	1	1920's	deteriorated (?)
BO-C-47	S23T17R13	White Ck. Rang. Sta.	2	1930's	USFS destroyed
BO-C-54	S36T17R11	Pungo Creek	3	1930's	mining; burned 1960
BO-C-58	S8T16R12	Pete Snedegar Cabin	1	1952	mining; burned 1965
BO-C-60	S7T16R12	Mahoney Landing	1	1946	storage; deteriorated

BOISE N.F./LOMAN R.D.**Mining:**

BO-L-5	S33T13R9	Log Cabin	1	1920's	abandoned
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Agricultural:

BO-L-1	S17T13R10	Cy Springs Cabin	1	1960	shepherd cabin
BO-L-2	S34T14R9	Boundary Ck. Cabin	1	1960	shepherd cabin
BO-L-3	S11T13R8	Log Cabin	1	1915-20	squatter cabin

Structures absent:

BO-L-4	S19T13R10	Log Cabins	4	1915-20	squatter cabins
BO-L-6	S1T13R8	Stanfield Corrals	1	1930's	abandoned

CHALLIS N.F./CHALLIS R.D.**Mining:**

C-C-4	S33/34T15R16	Parker Mill	3+	ca. 1906	abandoned
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Forest Service Management:

C-C-1	S34T16R16	Mahoney Ck. Cabin	2	ca. 1924	trail crew use
C-C-2	S17T15R16	Warm Springs Ra. Sta.	1	ca. 1910	trail crew use
C-C-6	S2T15R16	Mahoney Springs	1	1933-35	CCC camp; abandoned
C-C-7	S36T17R14	Sleeping Deer LO	1	1934	abandoned
C-C-8	S27T16R16	Fly Creek Point LO	2	1935	abandoned
C-C-9	S13T16R17	White Goat LO	1	1941-42	abandoned
C-C-10	S33T15R17	Twin Peaks LO	2	1964	highest manned LO

Unknown use:

C-C-3	S18T16R17	Log Structure	1	---	---
C-C-5	S21T15R17	Log Cabin	1	---	---

CHALLIS N.F./MIDDLE FORK R.D.

Mining:

C-MF-1	S17T16R11	Log Cabin	1	---	abandoned
C-MF-2	S17T16R11	Log Cabin	1	---	abandoned
C-MF-4	S17T16R11	Huntington Cabin	1+	1938	abandoned
C-MF-12	S23T15R10	Bill Brockman Cab.	1	---	abandoned
C-MF-15	S18T14R10	Snowstorm Mine	1+	ca. 1927	abandoned
C-MF-16	S27T16R10	Ross Creling Cabin	1	1952-3	B0-C-42?
C-MF-17	S15T15R10	White Goat Mine	2	ca. 1910	abandoned
C-MF-18	S23T15R10	Joe Bump Cabin	2	ca. 1930	abandoned

Agricultural:

C-MF-30	S6T16R13	Cameron/Mahoney Rch.	1	ca.1916	F&G; GLO#025058
C-MF-34	S33T17R13	Red Bluff Ranch	1+	ca.1920	HES 579, 1922
C-MF-41	S22T16R14	Biggs Ranch	8	ca. 1916-50	HES 580, 1924

Trapping:

C-MF-5	S2T13R10	Log Cabin	1	---	abandoned
C-MF-10	S1T17R14	Log Cabin	1	---	abandoned

Forest Service Management:

C-MF-3	S24T16R9	Forty-four Ck. Cab.	2	1925	trail crew use
C-MF-13	S2T15R11	Log Cabin	2	---	trail crew use
C-MF-22	S34T17R11	Indian Ck. G.S.	1/10	1950/65	FS dest. orig. cabins
C-MF-27	S16T16R12	Little Ck. G.S.	1	1939	still in use
C-MF-32	S6T16R13	Mahoney Ck. Land. Fd.	1	1957	storage shed
C-MF-38	S18T17R14	Simplot G.S.	2	---	still in use
C-MF-43	S30T16R15	Falconberry G.S.	4	1941	still in use
C-MF-48	S2T13R11	Ruffneck Pt. LO	1	1932	built by CCC
C-MF-49	S9T14R10	Big Soldier LO	1	1937	abandoned; built by CCC
C-MF-50	S23T16R11	Little Soldier LO	2	1934	built by CCC
C-MF-51	S2T16R13	Loon Ck. Pt. LO	1	1938	built by CCC

Multiple Use:

C-MF-6	S16T17R11	Eddie Budell's Cab.	1	ca. 1933	trapping/outfitters
C-MF-9	S27T17R15	Cache Ck. Cabin	1	ca. 1924	patrol/backpackers
C-MF-11	S8T15R13	Fur Farm	1	---	fur farm/outfitters
C-MF-24	S17T16R12	Middle Fork Lodge	3	ca. 1900	HES 77, 1913; 2 bldgs. restored 1974
C-MF-28	S16T16R12	Sater Cabin	1	ca. 1906	HES 387, 1917; restored in 1974
C-MF-29	S16T16R12	Hood Ranch	1	ca. 1940	F&G; big game mgmt.
C-MF-31	S7T16R13	Cougar Creek Ranch	1	ca. 1911	HES 78, 1929
C-MF-37	S18T17R14	Simplot Ranch	3	ca. 1913	HES 90, 1916; modified
			1	ca. 1945	
C-MF-40	S29T18R14	Tappan Ranch	1	ca. 1917	HES 498, 1918; summer home

Recreational:

C-MF-8	S20T18R13	Bill Wooley's Cabin	1	---	hunting/outfitters
C-MF-26	S16T16R12	M.F. Lodge garage	1	1955+	State-owned; storage use
C-MF-42	S25T16R14	Falconberry Ranch	24	1950+	Pvt./USFS; HES 73, 1917

Unknown use:

C-MF-7	S15T17R13	White Creek Cabin	1	---	also BO-C-48
C-MF-14	S17T16R11	Log Cabin	1	ca. 1918	---

Unknown condition:

C-MF-20	S8T16R11	Middle Fk. G.S.	1	---	---
C-MF-33	S6T16R13	Guard Station	1	1932	log outhouse
C-MF-36	S27T17R13	Whitie Cox Cabin	1	ca. 1954	mining; abandoned
C-MF-39	S23T17R13	Log Shed	1	ca. 1916	homestead; abandoned
C-MF-44	S27T16R13	Lookout Cabin	1	1924	lookout; abandoned
C-MF-45	S21T15R11	Cabin	1	ca. 1927	mining; abandoned
C-MF-46	S13T14R9	Morgan Ranch	--	---	GLO #025271, 1930; pvt.
C-MF-47	S21/2T14R9	Sulphur Ck. Ranch	--	---	GLO #025266, 1923; now guest ranch
C-MF-21	S8T16R11	Pistol Ck. Ranch	--	---	GLO #026445, 1923; now subdivided

Structures absent:

C-MF-25	S21T16R12	Charlie Meyer's Cab.	1	---	deteriorated
C-MF-19	S7T15R10	Sheepeater H.S. bathhse.	---	---	deteriorated

CHALLIS N.F./YANKEE FORK R.D.

Mining:

C-YF-6	S5T15R15	Owen Cabins	2	---	abandoned
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Forest Service Management:

C-YF-5	S23T15R15	MidCottonwood Pt LO	2	1936	built by CCC; abandoned
C-YF-8	S7T14R13	Pinyon Peak LO	1	1931	still in use?

Unknown use:

C-YF-1	S30T14R16	Log Cabin	1	---	---
C-YF-2	S23T14R15	Log Cabin	1	---	---
C-YF-3	S13T14R14	Log Cabin	1	---	---
C-YF-4	S27T15R15	Log Cabin	1	---	---

Unknown condition:

C-YF-7	S1T15R15	Foster Ranch	?	pre-1919	pvt.; HES 110, 1919
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NEZPERCE N.F./RED RIVER R.D.

Agricultural:

N-RR-16	S32T26R10	Ayer's-Yellowpine Bar	1	pre-1919	HES 729, 1919; pvt. restoration begun 1978
			2+	1948	
N-RR-24	S30T26R11	Crowfoot Ranch	1	ca. 1912	private
			1	post-1951	private

Multiple Use:

N-RR-3	S12T24R6	Shepp Ranch	1	1910	HES 733; 10-IH-510; pvt.
			4+	1950's	---
N-RR-5	S35T25R5	Idaho 300	1	1900's	squatter tent camp
N-RR-12	S15T24R8	Painter Cabin	1	1919	HES 684, 1908; miner boarding house; pvt.
N-RR-14	S1,2,11T25R9	Whitewater Rch.	1	1897	HES 726, 1919;
			5	ca. 1966	pvt. guest ranch
N-RR-17	S28T26R10	Allison Ranch	1	1946	pvt; HES 169, 1913
			2+	---	
N-RR-4	S22,27T25R9	Jim Moore Place	1	1898	National Register
			4	1898-1910	

Unknown condition:

N-RR-1	S13T25R11	10-IH-179	1	---	homestead/fish camp
N-RR-6	S13T25R11	Idaho 357	1	---	same as N-RR-1 ?
N-RR-2	S31T26R11	10-IH-183	--	---	"homestead"
N-RR-8	S28T26R10	Idaho 593	1	ca. 1935	cabin
N-RR-9	S6T25R10	Idaho 360	1	---	cabin
N-RR-11	S6T24R6	Idaho 362	1	---	"mining"

Unknown condition, cont'd:

N-RR-13	S30T25R9	Gaines/Wolfe site	--	---	---
N-RR-15	S19T26R10	Bat Point LO	--	1935	---
N-RR-18	S19T27R10	Boston Mountain LO	--	1927	---
N-RR-19	S27T27R10	Boston Mtn. Admin.	--	1919	---
N-RR-20	S36T26R11	Bear Point LO	--	1931	---
N-RR-21	S15T26R11	Sheep Hill LO	--	1923	---
N-RR-22	S32T27R11	Cache Creek A.S.	--	1927	---
N-RR-23	S32T28R11	Granite Spgs. Cab.	--	1940	---
N-RR-25	S27T25R9	Groundhog Bar A.S.	--	1919	---
N-RR-26	S23T26R10	Bailey Bar Ad.Site	--	1919	---
N-RR-27	S29T25R9	Eakin Cabin	--	1931	---
N-RR-28	S20T25R9	Rabbit Point LO	--	1931	---

Structures absent:

N-RR-7	S10T25R11	Idaho 358-cabin	1	1932	cut up for firewood
N-RR-10	S11T25R9	Idaho 361-cabin	1	---	deteriorated

PAYETTE N.F./BIG CREEK R.D.

Mining:

P-BC-2	S4T19R9	Missouri Ck. Cabin	1	---	---
P-BC-10	S8T19R11	Log Cabin	1	---	---
P-BC-32	S24T24R9	Hand Cabin	1	---	---
P-BC-55	S26T22R9	Golden Hand Mine	1	---	Hartung's PY-252
P-BC-52	S--T22R9	Golden Hand Cabins	1+	---	Hartung's PY-253
P-BC-64	S11T21R10	Copper Camp	2	---	Hartung's PY-270
P-BC-65	S3T21R11	Jensen Cabin	2	---	Pvt.; Hartung's PY-286
---	S24T22R9	John Hand Camp	3	---	Hartung's PY-254
---	---	Taylor/Simonds	1	---	Hartung's PY-295
---	---	Swede Hanson claim	1	---	Hartung's PY-297; pvt.
---	---	George Douel's cl.	1	---	Hartung's PY-298; pvt.
---	---	Log House	1	ca. 1908	Hartung's PY-299;
---	---	Log House	1	ca 1930	abandoned Hartung's PY-294;
---	---	Log Cabin	1	---	abandoned Hartung's PY-255
---	---	Log Cabin	1	---	Hartung's PY-257
---	---	Log Cabin	1	---	Hartung's PY-258
---	---	Log Cabin	1	---	Hartung's PY-259
P-BC-63	S32T22R10	Mine complex	3	---	Hartung's PY-260
P-BC-50	S32T22R10	Mahan Mine	5	pre-1930	Hartung's PY-261
---	---	Log Cabin	1	---	Hartung's PY-262
---	---	Estep Mine Complex	1	1920's	Hartung's PY-264
---	---	Log Storehouse	1	1940's	Private
---	---	Concrete/wood dam	1	---	Hartung's PY-279
---	---	Mine complex	2+	---	Hartungs' PY-281; pvt.
P-BC-54	S35T22R11	Snowshoe Mine	8	---	Hartung's PY-282
					Hartung's PY-283

---	---	Log bunkhouse	1	ca. 1930	Hartung's PY-284; pvt.
---	---	Log bunkhouse	1	ca. 1930	Hartung's PY-285; pvt.
---	---	Prospector shack	1	1940's	Hartung's PY-287

Agricultural:

P-BC-75	S28T21R12	Gardner/Vines cabin	1	1950's	GLO #393389, 1913; Hartung's PY-278; pvt.
---	---	Ranch	4	---	Hartung's PY-289
---	---	Ranch	1	---	Hartung's PY-272

Trapping:

P-BC-1	S32T20R10	Catherine Lk. cabin	1	---	---
P-BC-3	S28T20R9	Belvedere cabin	1	---	---
P-BC-6	S9T19R12	Telephone Ck. cabin	1	---	---
P-BC-13	S29T22R13	"Dewets" cabin	1	---	---
---	---	Log cabin	1	ca. 1919	Hartung's PY-276; aban.
---	---	Log cabin	1	1930's	Hartung's PY-301; aban.

Forest Service Management:

P-BC-7	S25T19R12	Shellrock LO	1	---	abandoned
P-BC-14	S14T22R12	Cold Mt. LO	1	1920's	abandoned; = B0-C-17
P-BC-15	S35T23R12	Cold Meadow Ad.site	1	ca. 1915	airfield; = B0-C-15
P-BC-24	S30T25R12	Artic Point LO	1	---	also B0-C-20
P-BC-25	S28T25R11	Hot Spgs. Mead. cab.	1	1930	also B0-C-11
P-BC-26	S20T25R11	Rocky Point LO	1	ca. 1915	abandoned; =B0-C-14
P-BC-34	S35T24R10	Chamberlain Ad. site	1	1954	airfield; =B0-C-21
P-BC-37	S31T23R9	Chicken Peak LO	1	1930	abandoned; =B0-C-10, P-MC-4
P-BC-54	S11T21R11	Acorn Butte LO	1	---	Hartung's PY-288; aban.
P-BC-58	S1T20R12	Rush Point LO	1	---	Hartung's PY-304
---	S10T20R14	Big Creek Bridge	1	---	Hartung's PY-317
---	S9T20R14	Bighorn Bridge	1	1960's	Hartung's PY-316
---	---	Soldier Bar Bridge	1	---	Hartung's PY-308
---	---	Soldier Bar cable	1	1960's	Hartung's PY-309
---	---	Taylor Ranch bridge	1	1940's	---
---	---	Cabin Ck. Cable car	1	---	---
---	---	Monumental Bar brdg.	1	post-1930	Hartung's PY-273

Multiple use:

---	---	Log cabin	1	1930's	mining/outfitter; Hartung's PY-263
---	---	log cabin	1	---	trapping/vacation home; Hartung's PY-268
P-BC-67	S17T21R12	Mile High Ranch	1+	1920's	GLO #748436, 1920;
			1+	1948	F&G; Hartung's PY-277
---	S3T20R13	Taylor Ranch	2	ca. 1910	remodeled; HES 809, 1928
			3+	ca. 1954	Univ. Idaho; Hartung's #

P-BC-43	S25T21R12	Cabin Creek Ranch	7	1890-1940's	Hartung's PY-113
			6	---	Orig. GLO #'s:010343,
			1	1930's	010554, 015709, 045155;
			7	1950's	dated 1918, 1918, 1920,
			8	1960's	1930, respectively.

Unknown use and condition:

---	---	Log cabin	1	---	Hartung's PY-266
---	---	Log cabin	1	---	Hartung's PY-271
---	---	Donkey engine	1	---	Hartung's PY-265
---	---	Wilbur Wiles	2	---	---

Unknown condition:

P-BC-5	S6T19R10	Yardley cabin	--	---	"mining"
P-BC-8	S19T20R12	W. Fk. Ruch Ck. cab	1	---	"trapping"
P-BC-11	S15T22R13	Coyote Spgs.	1	---	"telephone booth"
P-BC-12	S20T21R14	Big Hill LO	--	---	abandoned
P-BC-16	S6T21R12	Crescent Meadows	1	---	shelter
P-BC-9	S7T19R11	Thunder City	--	---	townsite
P-BC-17	S10T21R12	Cave Ck. shelter	--	---	abandoned
P-BC-18	S26T22R10	88-Ridge cabin	--	---	"mining;" abandoned
P-BC-19	S33T24R12	Whimstick cabin	--	---	---
P-BC-21	S28T23R11	Moose Mdws. cabin	--	---	"trapping"
P-BC-22	S19T24R12	Mule Creek cabin	--	---	---
P-BC-23	S16T25R10	Harlem Creek	--	---	"trapping"
P-BC-27	S25T25R10	Dillinger Mdws. cab	--	---	"trapping"
P-BC-28	S7T24R9	Lemhi Point LO	--	---	abandoned
P-BC-30	S1T23R10	Lodgepole Pt. LO	--	---	abandoned
P-BC-35	S19T22R10	"Mohawk" cabin	--	---	---
P-BC-36	S23T23R10	Lower Lodgepole cab	--	---	"mining"
P-BC-38	S33T22R10	Ramey LO	--	---	---
P-BC-39	S36T23R10	Hay press	--	---	---
P-BC-41	S27T19R11	Belleco Mill	--	---	"mining camp"
P-BC-42	S2T19R11	Lookout Mtn. range	--	---	"trapping"

No site forms were provided for the following mapped properties:

P-BC-46, 47, 48, 49, 51, 59, 62, 63, 66, 68, 69, 70, 71, 74, and 76.

Structures absent:

P-BC-40	S24T19R10	Roosevelt townsite	--	1900's	under mudslide/flood
P-BC-4	S4T19R11	Monumental Ranch	--	---	USFS destroyed in 1960's
P-BC-20	S2T23R11	McCoy or Masher cab.	--	---	USFS destroyed in 1956
P-BC-29	S5T23R10	Smokehouse	--	---	deteriorated
P-BC-31	S27T24R9	Sheepeater LO	--	---	burned 1920's; =B0-C-18
P-BC-33	S9T22R10	Rock Rabbit LO	--	---	destroyed 1977
P-BC-45	S23T21R11	Dewey Moore Ranch	--	---	burned 1975; pvt. Hartung's PY-284
P-BC-57	S28T21R13	Horse Mountain LO	--	---	burned 1975; Hartung's PY-54
---	---	Holmsley Ranch	--	---	deteriorated

---	---	"Cougar Dave" Lewis Cabin---	burned; Hartung's PY-307
---	---	Thunder City camp -- ---	CCC camp, dismantled in 1940's; Hartung's # PY-296; poss. =P-BC-46
---	---	Eagan Pt. LO -- ---	temp. CCC LO; Hartung's PY-314; deteriorated

Sites other than structures/buildings:

---	---	Airplane crash site -- ---	Hartung's PY-315
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PAYETTE N.F./McCALL R.D.

Agricultural:

P-MC-1	S8T22R8	Log cabin	1	---	homestead; abandoned
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Forest Service Management:

P-MC-5	S9T22R8	Porphyry Pack bridge	---	---	
P-MC-6	S9T22R8	Porphyry cabin	1	---	administrative use
P-MC-7	S33T23R8	Rooster Ck. bridge	1	---	---

Non-building site:

P-MC-2	S15.16T23R7	Diversion ditch	--	---	irrigation
P-MC-3	S7T23R8	Diversion ditch	--	---	---

No site forms were provided for the following mapped properties:

P-MC-9, 10, 11, 12, 13, 14, 15, and 16

SALMON N.F./COBALT R.D.

Mining:

S-CO-11	S34R20T14	Soldier Ck. Mill	3+	1920's	abandoned; National Register proposed
S-CO-25	S36T22R14	Parrott Placer camp	1	---	abandoned; =S-NF-2

Trapping:

S-CO-20	S12T21R16	Clear Creek cabin	1	ca. 1950	---
S-CO-22	S31T22R17	Upper Shoup cabin	1	ca. 1950	---
S-CO-23	S1T19R14	Trapper cabin	1	ca. 1920	abandoned

Forest Service Management:

S-CO-21	S22T18R16	Blacksmith Forge	1	ca. 1933	part of CCC camp; aban.
S-CO-26	S30T19R15	Middle Fk. Pk. LO	1	---	rebuilt 1962
S-CO-27	S5T19R14	Short Creek LO	1	1930	unknown present use
S-CO-29	S17T22R18	Gant Mountain LO	1	ca. 1937	horizontal control sta.
S-CO-38	S2,3T22R17	Sagebrush LO	1	1923	still in use?

Recreational:

S-CO-19 S18T18R15 Bear Ck. Pt. cabin 1 --- hunter's cabin

Multiple use:

S-CO-1 S12T27R17 Ranchero Ck. cabin 4+ --- squatter/trapper cabin

Unknown condition:

S-CO-13	S22T19R14	Brush Ck. cabin	1	ca. 1900	DLE #977611, 996989
S-CO-6	S27T19R14	Horse Thief cabin	1	ca. 1926	incl. corral; part of S-CO-13?
S-CO-15	S34T19R15	Sheep Creek cabin	1	1914	DLE # 1046439; part of Mormon Ranch
S-CO-2	S10T19R16	Hoodoo Creek cabin	2	1890's	abandoned; "mining"
S-CO-4	S25T20R15	Johnson Lode prosp.	2	1920's	"mining"
S-CO-5	S29T20R16	Showshoe Johnson cab.	1	ca. 1910	"mining"
S-CO-7	S35T19R15	Frank Love cabin	1	1930's	"trapping"
S-CO-8	S35T20R15	Wilson Creek cabin	1	ca. 1900	"mining"
S-CO-9	S27T20R14	Big Horn prospect	2	ca. 1900	"mining"
S-CO-10	S21T20R14	Survey Ck. cabin	2+	1920's	incl. mill; abandoned
S-CO-12	S10T20R14	Waterfall Ck. cabin	1	---	"trapping"
S-CO-17	S26T20R16	Eagan cabin	1	1900's	"trapping"

Structures absent:

S-CO-3	S23T20R14	Wollard Cr. cabin	1	1900's	"mining;" deteriorated
S-CO-37	S12T22R16	Horse Heaven LO	1	1937	USFS destroyed

No permanent structures ever were built at the following Forest Service LO's:

Bear Creek Point	S-CO-28	Aggipah Mtn.	S-CO-30
Wilson Mtn.	S-CO-31	Puddin Mtn.	S-CO-32
Indian Point	S-CO-33	Mt. McGuire	S-CO-34
Sugar Loaf	S-CO-35	Mormon Mtn.	S-CO-36

Sites other than structures:

S-CO-14	S--T18,19,20R15,16	Middle Fork telephone line, 1937
S-CO-16	S15T18R15	Kaufman's Cave -- --- natural shelter;"hermit"

SALMON N.F./NORTH FORK R.D.

Mining:

S-NF-11	S13T24R14	Colt Creek cabin	1	1961	---
S-NF-31	S13T23R15	Procter Ck. cabin	3	---	permittee; abandoned
S-NF-36	S29T23R16	Placer Creek cabin	3	---	permittee; abandoned

Forest Service Management:

S-NF-1	S13T22R14	Stoddard Ck. cabin	2	ca. 1939	Mt. sheep observ. site
S-NF-5	S28T22R14	Stoddard Ck. LO	1	1934	trail crew use
S-NF-6	S28T22R14	Stoddard Ck. barn	1	1934	trail crew use

S-NF-10	S4T23R14	Butt's Ck. Pt. LO	1	1935	still in use
S-NF-26	S19T23R17	Ebenezer Bar CCC	1	---	"sanitary facility"
S-NF-27	S27T23R16	Long Tom campground	1	---	"sanitary facility"
S-NF-30	S21T23R16	Cache Bar boat ramp	1	---	"sanitary facility"
S-NF-32	S13T23R15	Bear Creek toilet	1	---	"sanitary facility"
S-NF-33	S1T23R14	Corn Creek campgd.	4	const.	new info. center

Recreational use:

S-NF-8	S28T23R14	Kitchen Creek camp	1	---	outfitter's cook shack
S-NF-9	S8T23R14	Fern Creek camp	1	---	outfitter's cook shack
S-NF-12	S36T25R13	Lost Packer cabin	1	---	outfitter's storage
S-NF-35	S28T24R14	Stub Creek camp	1	---	permittee; floater camp

Multiple use:

S-NF-24	S14T23R17	Cove Creek cabin	3	---	permittee; mining orig., now year-round resort
S-NF-25	S21T23R17	Ramshead Lodge	3	---	permittee; mining/cafe
S-NF-29	S28T23R16	Sergeant's cabin	1	1930	permittee; mining orig., now summer home
S-NF-34	S1T23R14	Salmon River Lodge	7	---	mining/guest ranch; some structures private
S-NF-39	S13T23R17	Cove Ck. Br. cabin	3	---	mining/residence; pvt?
S-NF-4	S22T22R13	Trapper Lake lodge	1	---	trapper cabin, now spike camp for outfitter

Unknown condition:

S-NF-13	S12T22R15	Horse Heaven barn	1	---	abandoned
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Structures absent:

S-NF-3	S31T22R14	Cabin	1	---	deteriorated
S-NF-7	S1T22R14	Nolan Point LO	1	---	USFS burned

The following properties are outside of the River of No Return Wilderness:

S-NF-37	S10T23R18	Cohen Gulch cabin	1	---	mining cabin
S-NF-38	S18T23R18	Panther Creek cabin	2	---	mining cabin
S-NF-18	S24T24R19	Indianola Field sta.	10	---	USFS field station
S-NF-40	S20T24R19	Spring Ck. boat ramp	3	---	"sanitary facility"
S-NF-19	S23T24R19	Sawlog Gulch cabin	3	---	permittee residence
S-NF-21	S25T24R18	Boulder Creek cabin	1	---	permittee residence
S-NF-22	S36T24R18	Pine Creek cabin	3	---	permittee residence
S-NF-23	S10T23R18	Big Sheepeater cab.	2	---	permittee residence
S-NF-20	S31T24R19	Shoup store	1	---	---

The following properties are outside the area covered by the River of No Return Wilderness base map:

S-NF-14	S17T24R21 Newland Ranch Acc.	1	---	"sanitary facility"
S-NF-17	S25T24R20 Deadwater CG	1	---	"sanitary facility"
S-NF-15	S17T24R21 Newland Ranch	4	---	USFS living quarters
S-NF-16	S17T24R21 North Fork Ra. Sta.	4	---	hotel/stage stop orig.

Source: U.S.D.A.-Forest Service Preliminary Inventory forms, 1981

REVIEW OF WILDESEN'S OVERVIEW

Dr. Ken Ames
Boise State University

I have read Leslie Wildesen's overview of the cultural resources in the River of No Return Wilderness. My comments address the prehistoric archeology sections of the work. I am not commenting on the environmental or historic sections.

Dr. Wildesen was faced with a very difficult task--producing a usable overview in a relatively short period of time. The regional and local literature is hard to use, if and when you can find it. She has managed to pull that material together to produce a coherent, literate document. Dr. Wildesen writes well, which is unusual for an archeologist. The overview is a good compendium of the regional literature.

Its problems are, therefore, in many ways, the problems inherent in that literature. The overview also suffers from the problems of most overviews; these arise from time and money constraints.

The overview is resolutely cultural historical in approach and content, as is the regional literature. However, Dr. Wildesen does not use that literature critically. For example, she cites tertiary sources (e.g., Aikens 1978). At this time, there exist only the weakest controls over the temporal and spatial variability of prehistoric cultures anywhere in Idaho. There is no cultural-historical framework for any part of the Snake River drainage above its confluence with the Clearwater. The work of Warren, Sims and Pavesic, Pavesic, and Randolph and Dahlstrom provides a basis for such a framework in Hells Canyon; but considerable work is still required. Swanson's work in eastern Idaho rests upon a very narrow substantive base and probably cannot be widely applied. We basically know that people have been here for a long time. We are developing data for southern Idaho for the last 5,000 years, but it is still sketchy. (Wildesen fails to mention any of this, including Plew's work, or the pottery debate between Plew and Butler.) Thus, the acquisition of this kind of information is an essential first step which Wildesen fails to note. She also fails to indicate that there is no paleoenvironmental data available for the drainage or that its acquisition might be important. Thus, while being very cultural historical in emphasis, she does not place equal weight on basic gaps in the data base in the region; gaps which work in the Salmon River drainage might help to fill.

Wildesen emphasizes the need to resolve the problem of who lived in the Wilderness area--the Shoshoni or the Nez Perce? To my mind, that is a trivial question at best. (My view is not necessarily widely shared.) She does not tell us how to answer the question, and the presence of pithouses will not since they are now documented in the Great Basin and in southern Idaho. The Salmon River drainage is not like the Plateau or the Great Basin and so we should not expect human adaptations to it to be similar, nor should we expect linguistic affiliation to constrain cultural adaptation, diffusion, or invention.

Wildesen seems unaware of recent work in the Great Basin challenging the utility of the desert culture concept in explaining all of Great Basin prehistory (e.g., Bettinger 1978). My basic criticism is that the overview treats the key problems in the region as problems in drawing culture-area boundaries.

There is a large and growing body of theory on forager adaptations that could have been employed in the overview to generate research problems and as a basis for criticising the literature. Thus, Wildesen has lost an opportunity to make a valuable contribution to the area. The list of problems on pages 126-127 could be much more sophisticated and grow out of an attempt to link local problems to more general theoretical and methodological problems.

In summary, I do not think the overview provides a strong statement of the kinds of very real substantive problems in the region. I have discussed only chronological problems; there are many others. Further, the overview draws upon too limited a base for the generation of research problems. Some recourse to the general literature on forager adaptation seems in order.

REPLY TO DR. KEN AMES

Dr. Leslie Wildesen

I appreciate the kind comments with which Dr. Ames begins his cursory review of the Farthest Frontier of All. As Ames notes, there is very little substantive literature available on the prehistory of the Wilderness, and what recent work has been done in immediately surrounding areas (including work by Ames) is either not published or was published after the overview was completed.

I find it interesting that Ames misinterprets two major points contained in the overview. I emphatically do not believe that identifying the ethnic affiliation of the "occupants" of the Salmon River Mountains is a particularly important question, either for research or for management purposes. That is the main reason that such a question was omitted from the list of either short- or long-term data needs. I also personally do not believe that the Desert Culture concept has much validity anywhere, and especially not in a high-elevation, big-game/salmon/camas area such as the central Idaho Wilderness. I specifically cited Jennings' own "Death of a Hypothesis" paper, and pointed out that, while it has been a useful stimulant to past research, the Desert Culture was an old idea and not very useful anywhere in the Great Basin. Most of the old (and recent) archeological research in southern Idaho, however, which was relevant to problems within the Wilderness, used the Desert Culture concept (along with outdated or inadequate environmental concepts such as the Altithermal) in framing and testing hypotheses. Thus, what Ames misinterprets as my own point of view, or my failure to critically review the literature, is more a function of the narrative purpose of the overview (to compile existing data) than a description of my beliefs or capabilities.

Plew's work on pottery is specifically mentioned, as in Butler's. Because of what apparently are page number changes from the copy I have, and the copy Ames reviewed, I cannot tell him on what page to look; on my copy the discussion is on page 94.

For similar reasons, I cannot determine what list of research questions Ames refers to, but I suspect his dissatisfaction with them (whichever they are) stems from a differing preception of what an "overview" ought to provide. As Ames points out, the topics and lists of data needs do not address theoretical and methodological problems in central Idaho archeology; any of us with experience and interest in western North American prehistory could come up with such a list, and I would hope that such questions are an integral part of the research protocol contained in the Idaho State plan.

The Wilderness manager, however, has a very different kind of problem to solve, and set of decisions to make. The overview was written in response to Section 8 of the Central Idaho Wilderness Act, which specified that within 5 years of passage, the Forest Service would have identified (1) existing data, (2) existing data gaps, and (3) a means to fill such gaps as are necessary for making management decisions (i.e., which sites to keep, make available for research, interpret, eliminate, keep using, nominate to the National Register, etc.). In addition, the Wilderness manager is to

develop a program to "encourage research" on known and potential sites, and to make certain very important decisions about the hundreds of historic resources in central Idaho. None of these decisions or actions requires a discussion of a theory of foraging; clearly, future research in central Idaho might be conducted in order to test Bettinger's ideas, or the ideas of Ames and Marshall on Plateau adaptations, or any other theories.

Ames is correct in stating that the overview is "resolutely cultural historical in approach and content," and in attributing some of the reasons for that to the nature of the regional literature. More important, however, as I pointed out in my preface, "it is...these things about which management decisions need to be made," and until the simple (!) outlines of culture history are known for the Salmon River Mountains, it will be difficult for the research community to ascertain which of these "things" might appropriate for answering certain kinds of broader, theoretical research questions. Hence, the lists of short-term and long-term data needs are designed to fill gaps in existing data such that the range of substantive research questions can be adequately identified by the archeological research community, including Ames. At this time, without an adequate chronology, with no paleoenvironmental data, and with no clear picture of the nature and distribution of prehistoric sites outside of the major river corridors, it is premature to seek to define rigorous testable research questions of the sort Ames wishes had been included. Rather than failing to mention "any of this", as Ames asserts, I specifically address these (and other pressing topics) under short-term data needs.

I wish that Ames had discussed the historical and environmental sections in his review; no members of research communities responded to my request for assistance. Members of the archeological research community who responded are cited in the acknowledgements; Ames might be interested to know that none of them provided any statements of "substantive problems in the Region" on the level that he discusses in his review, including him. In closing, I would like to point out that the research community has a continuing opportunity to help develop the Comprehensive Management Plan for the Wilderness, through public input processes that should be well known to them. I encourage such participation, and most of all, I encourage archeologists (and other area scholars) to develop some specific proposals for research use of the cultural resources within the River of No Return Wilderness. Only through research of the kind Ames advocates can we answer some of the questions he raises; I would hope one of the earliest concrete proposals comes from him.

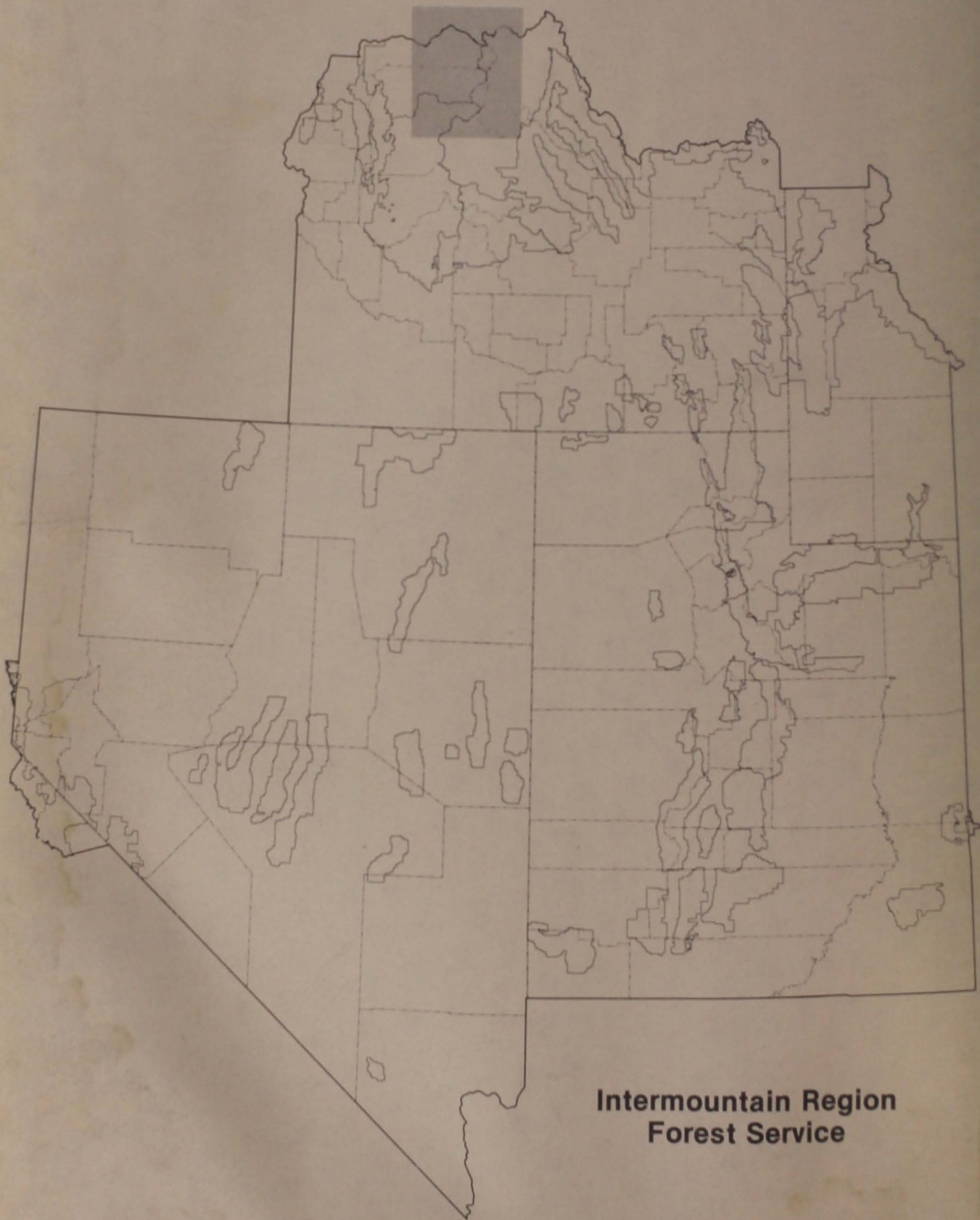
CULTURAL RESOURCE REPORTS

**USDA Forest Service, Intermountain Region
324 25th Street, Ogden, UT 84401**

**Jerry Wylie and Tom Scott
Editors**

- No. 1 - Archeological Reconnaissance Survey of the Bridger-Teton National Forest. George C. Frison (1975).
- No. 2 - The Elk Ridge Archeological Project: A Test of Random Sampling in Archeological Surveying. Evan I. DeBloois (1975).
- No. 3 - Lithic Sites of the LaSal Mountains, Southeastern Utah. Dee F. Green (1974).
- No. 4 - Pahsimeroi Valley Longitudinal Subsistence-Settlement and Land Use Study. James C. Chatters (1976).
- No. 5 - The Archeology of the Sheepeater Battleground and Redfish Overhang Sites: Settlement Model for Central Idaho. Joseph G. Gallagher (1979).
- No. 6 - An Overview of History in the Drainage Basin of the Middle Fork of the Salmon River. Mary P. Rossillon (1981).
- No. 7 - A Cultural Resource Reconnaissance of the Middle Fork Salmon River, Idaho, 1978. Ruthann Knudson and others (1982).
- No. 8 - A Cultural Resource Overview of the River of No Return Wilderness, Idaho. Leslie Wildesen (1982).

RIVER OF NO RETURN WILDERNESS STUDY AREA



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